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Nevada Aircraft Accident Fact Finding Team Report

August 4-8, 1980

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I. INTRODUCTION

A. General Background

B. Team Assignment

C. Team Mission

I. Introduction

On July 11, 1980, an aircraft accident occurred in the Ely District, Nevada, which resulted in the death of all passengers. Included were Farrell Gale, pilot-owner, Ely Flying Service; Joseph Bass, Fire Apparatus Engineer (Tank Truck Operator); Daniel Hase, Fireman (normally supervised by Mr. Bass); and Todd Harrison, Fireman (also normally supervised by Mr. Bass). The mission that resulted in the accident was paracargo delivery of radio batteries to the "Majors Fire", since radio communication with the fire had been lost since morning.

As a result of the accident, the Office of Aircraft Services (OAS) and the National Transportation and Safety Board (NTSB) investigated the accident, relating to cause of crash.

The Bureau of Land Management assigned a Fact Finding Team to investigate the accident, relating to areas exclusive of cause. The team was composed of the following individuals:

Russell Hanson - Staff Officer, Washington Office, team member
Richard LeDosquet - BLM Deputy Director, BIFC, team member
Arlan Smith - State Fire Management Officer, Oregon, team member
Rich Nase - State Aviation Management Officer, Nevada, team member
Robert Clithero - State Air Officer, Alaska, team technical advisor
Alan Dunton - Smokejumper Project Leader, Alaska, team technical advisor
Joe Kastelic - State Fire Management Officer, Alaska, team leader

The Fact Finding Team was to investigate events during the time period prior to aircraft departure, dispatch functions during the flight, and search/reporting functions after the accident.

The primary purpose of the team's accident investigation, as outlined by the State Director, Nevada, was fact finding to prevent similar occurrences and thus improve safety in aviation operations. The emphasis was on discovery of all cause-effect relationships from which practical corrective remedial actions can be derived. No attempt was made to fix responsibility.

II. ORGANIZATION AND SELECTED EMPLOYEE BACKGROUND SKETCH

A. Ely District Organization Chart

B. Ely Fire Management Organization Chart

C. Ely Fire Management Employee Chart

D. Selected Employee Background Sketch

E. Training "S" Course Description

F. Position Description, Danny King, Ely District Fire Management Officer

DISTRICT MANAGER, NEIL B. McCLEERY, GS-15 N-040 1601

9997 FPL GS-9 GS-7, CLEONE McDONALD, WRITER EDITOR -

9997 FPL GS-9 GS-5, MARCIA HAYES, ECONOMIST -

- ENVIRONMENTAL COORDINATOR, KATHY KUSHLER, GS-9 FPL GS-11 1604
- PLANNING COORDINATOR, STEPHEN RYNAS, GS-11 1605
- SUPERVISORY ENVIRONMENTAL COORDINATOR (SCHELL ES) FPL GS-12

DIVISION OF RESOURCE MANAGEMENT N-043

Chief - 3701	George W. Cropper		GS-12
Range Spec. - 3709	John Barnes		GS-11
Wildlife Spec. - 3706	Mark J. Barber		GS-11
Archaeologist - 3707	Walt L. Cassidy		GS-11
Inventory Spec. - 3705	Roddy Hardy		GS-11
Watershed Spec. - 3710	Duane Ketterling		GS-11
W.H. & Burro Spec. - 3711	Richard Howard		GS-9
Recr. Planner - 3712	Larry P. Jung		GS-11
Soil Scientist - 9997	Roger Koon	FPL GS-9	GS-7
Soil Scientist - 9997	Charles Carroll	FPL GS-9	GS-7
Soil Scientist - 9997	Steven Kiracofe	FPL GS-9	GS-7
Archaeologist - 9997			GS-9
Studies Spec. - 9997	Norma VanGrunsven		GS-9
Recr. Planner - 3714	Jacob A. Rajala		GS-11
Range Con. - 9997	Frederick Fisher	FPL GS-9	GS-5
Archaeologist - 9997	Peggy E. Gaudy		GS-7
Recr. Planner - 9997	C. Wayne Howle		GS-7
Range Con. - 9997	Allan R. Vesley	FPL GS-9	GS-7
Range Con. - 9997	William Lindsey	FPL GS-9	GS-7
Hydrologist - 9997	Peter Porfido	FPL GS-11	GS-7

DIVISION OF OPERATIONS N-042

Chief - 2701	G. Duncan MacDonald		GS-11
Fire Mgmt.Offr.-2705	Danny King		GS-9
Eng. Technician-2708	Bill Rice		GS-9
Realty Tech. - 9997	Ben Cope	FPL GS-9	GS-8
Eng. Tech. - 9997	Walter A. Burdick		GS-7
Fire Control - 9997	Mike Lipka	FPL GS-8	GS-6
Equipment Oper.-9997	William Almberg		WG-8
Unimog Operator-9997			GS-6
Camp Director	John Huth		GS-9
Project Sup.	Ron Basso		GS-6
Project Sup.	Kathy Downey		GS-6
Project Sup.	Bert Cooper	FPLGS-6	GS-5
Project Sup.	Fred Frampton		GS-6

DIVISION OF ADMINISTRATION N-041

Chief - 1701	Quentin R. Schroeder		GS-11
Clerk-Steno - 1704	Mary Lou Wilcox		GS-4
Dist. Clerk - 1705	Shirley J. Hawkins		GS-5
Records Mgr.-1706	Helen S. Weston		GS-5
Clerk-Steno - 9997			GS-3
Clerk-Steno - 9997	Nevada F. Loper		GS-3
Clerk-Steno - 9993	Joyce A. Yelland		GS-3
Maint. Man - 9997	Miles H. Miller		WG-6
Clerk - 9997	Rita Suminski		GS-3
Clerk Typist-9998	Beth H. Ross		GS-3

EGAN RESOURCE AREA N-046

Area Manager - 6801	Richard T. Watts		GS-11
Sup. Range Con. - 6807	Mark J. Goeden		GS-11
Geologist - 6808	Delbert Fortner	FPL GS-11	GS-9
Realty Spec. - 6809	Ron E. Sjogren		GS-11
Wildlife Biologist - 6810	Mike W. Perkins		GS-9
Forester - 9997	John W. McGlothlin		GS-9
Range Con. - 9997	Vearl Christiansen	FPL GS-9	GS-7
Range Con. - 9997		FPL GS-9	
Range Tech. - 9997	Walter A. Burdick (Tooter)		GS-5
Range Con. - 9997	David Johnson	FPL GS-9	GS-7

SCHELL RESOURCE AREA N-047

Area Manager - 7801	Wayne M. Lowman		GS-11
Sup. Range Con. - 7805	Loran A. Robison		GS-11
Realty Spec. - 7806	David L. Redmond		GS-9
Wildlife Biologist - 7807	Scott R. Robinson		GS-9
Geologist - 7808	Robert H. Wood II	FPL GS-11	GS-9
Range Con. - 7809	Leonard F. Brouse		GS-9
Range Con. - 9997	Wayne A. Stevens	FPL GS-9	GS-7
Range Con. - 9997	Andres J. Minor	FPL GS-9	GS-7
Forester - 9997	Harry T. Rhea		GS-9
Range Tech. - 9997	Alden C. Kerr		GS-5

ELY DISTRICT

FIRE SUPPRESSION ORGANIZATION

Calendar Year 1980

District Manager

Chief Division of Resources | Cheif Division Administration | Cheif Division of Operations | Area Manager | Area Manager

Fire Management Officer (1) PFT
1/2 Ford Courier (2x4) I-131438

Fire Control Officer (1) WAE
3/4 T. 1975 Dodge (4x4) I-114024
3/4 T. 1978 (4x4) 6 Passenger
I-125713

Fire Prevention Technician (1) Temporary

Dispatcher (3) Temperory

Engine I-125869
Unimog (1978)
420 Gallons
Fire Engine Operator (1) Temp.
Fireman (1) Temp.

Pumper I-125790
Dodge 4x4 (1979)
200 Gallons
Fire Appartus Engineer (1) Temp.
Fireman (2) Temp.

Pumper I-125874
Dodge 4x4 (1978)
200 Gallons
Fire Appartus Engineer (1) Temp.
Fireman (2) Temp.

Pumper I-131382
Chevy 4x4 (1977)
200 Gallons
Fire Appartus Engineer
Fireman (2) Temp.

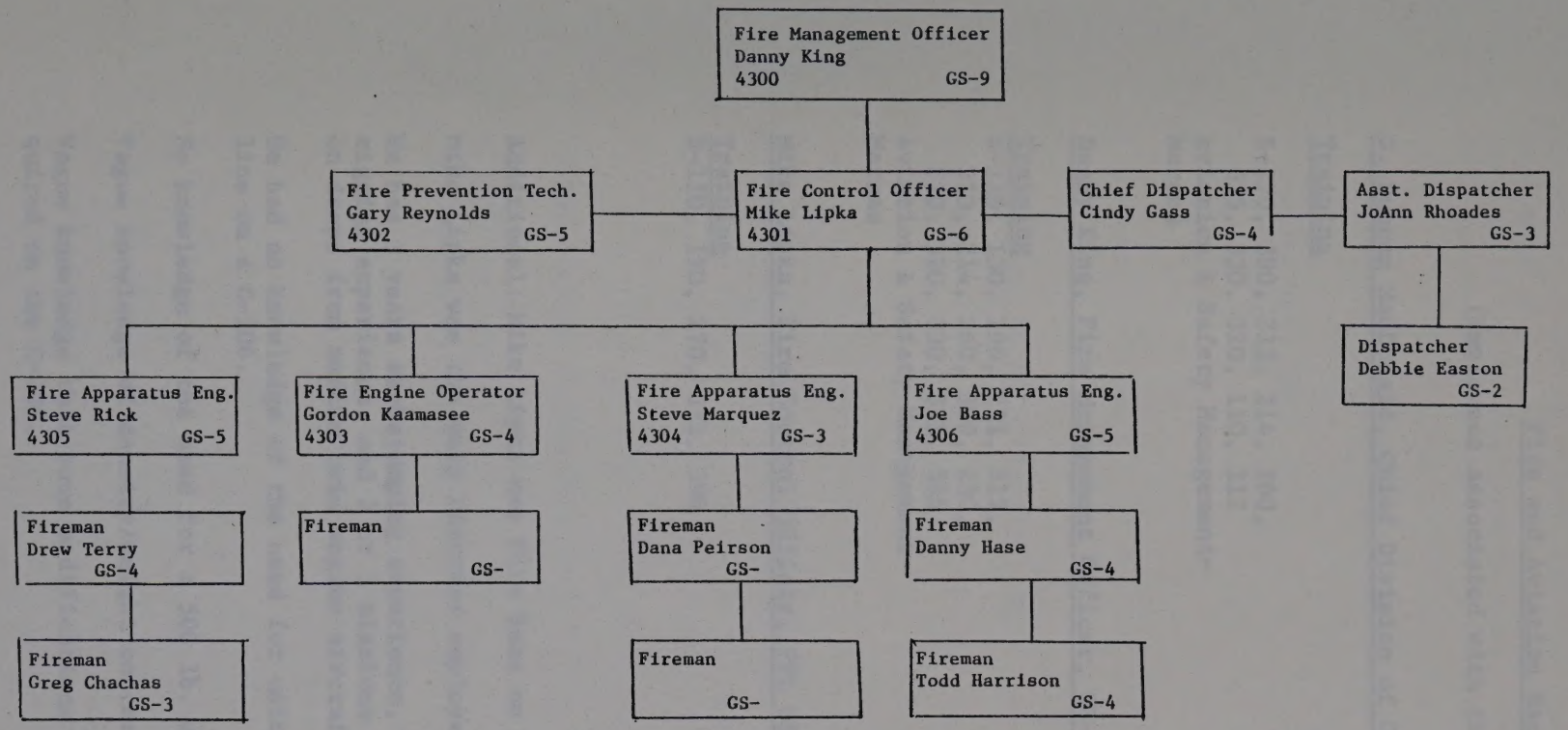
Caliente Station Manager (1) WAE

Pumper (supplied by Las Vegas)
200 Gallons
Fire Appartus Engineer (1) Temp.
Fireman (2) Temp.

Engine I-116936
Ford 4x4 (1976)
600 Gallons
Fire Engine Operator (1) Temp.
Fireman (2) Temp.

Additional Manpower and Equipment

1. Reserve Pumper I-121634, 125 Gallons, Dodge 4x4 (1977).
2. Slip on unit, 100 gallons 1 each.
3. Portable pump, Corman Rupp backpack (1) each.
4. Cat, D-4 Force Account (2) each.
5. Transport, Mack Tractor, Force Account (1) each.


Fire Management Officer
Danny King
4300 GS-9
Fire Prevention Tech.
Gary Reynolds
4302 GS-5
Fire Control Officer
Mike Lipka
4301 GS-6
Chief Dispatcher
Cindy Gass
GS-4
Asst. Dispatcher
JoAnn Rhoades
GS-3
Dispatcher
Debbie Easton
GS-2
Fire Apparatus Eng.
Steve Rick
4305 GS-5
Fire Engine Operator
Gordon Kaamasee
4303 GS-4
Fire Apparatus Eng.
Steve Marquez
4304 GS-3
Fire Apparatus Eng.
Joe Bass
4306 GS-5
Fireman
Drew Terry
GS-4
Fireman
GS-
Fireman
Dana Peirson
GS-
Fireman
Danny Hase
GS-4
Fireman
Greg Chachas
GS-3
Fireman
GS-
Fireman
Todd Harrison
GS-4

Fire and Aviation Background Sketch

(Employees associated with the accident situation)

G. Duncan MacDonald, Chief Division of Operations, GS-11

Training

S-270, 390, 213, 214, 260, 355, 330, 320, 110, 212
Aviation & Safety Management-Marana

Experience

On fires since 1966.
Has not held a dedicated fire position.

Danny King, Fire Management Officer, GS-9

Training

S-110, 130, 190, 211, 212, 213, 214, 260, 390, 230, 270, 320, 330, 331, 355
Aviation & Safety Management-Marana

Experience

On fires since 1968.
Fire experience with BLM and USFS.
Two years in present position.
Range Con. experience with BLM.
Rated Fire Boss III

Mike Lipka, Fire Control Officer, FPL GS-8, GS-6

Training

S-110, 190, 270, 331, 390

Experience

On fires since 1974.
Three seasons as USFS smokejumper (Missoula and N. Mexico)
Cargo chute rigger.
Assistant paracargo dropper.

Additional: Mike Lipka was Fire Boss on Majors Fire over which the accident occurred.

Mike Lipka was the only District employee with any paracargo knowledge.

He has 3 years smokejumping experience, which included some cargo chute rigging experience, and 2 or 3 missions as assistant paracargo dropper on drops from medium twin engine aircraft.

He had no knowledge of the need for using a shorter than standard static line on a C-206.

No knowledge of the need for a 500 lb. weak link.

Vague knowledge of density/weight concerns of cargo.

Vague knowledge that some modifications and accessories would be required on the C-206.

Note: Although the above indicates Mike Lipka lacked sufficient knowledge to set up a safe C-206 paracargo operation, he in fact had only gone as far as the chute acquisition. He planned future inquiries concerning C-206 modification needs. This procedure's development may have led him to the necessary expertise.

Joe Bass, Fire Apparatus Engineer, GS-5

Training
3 seasons with USFS
Fire control and associated training
S-270, 230

Experience
First year in Ely as a Tank Truck Operator.
Other previous experience on fire crews.
No paracargo familiarity.
Army paratrooper.
Skydiver.

Cindy Gass, Chief Dispatcher, GS-4

Training
S-110, 130, 190, 230, 270

Experience
One fire season on fire crew.
Two fire seasons (incl. present) in dispatch.

JoAnn Rhodes, Asst. Dispatcher, GS-3

Training
No fire training

Experience
Second year in dispatch.
Five years in BLM clerical.

Debbie Easton, Dispatcher, GS-2

Training
S-110, 130, 190
OAS helicopter training

Experience
First year in dispatch.

Training "S" Course Description

S-110 Basic Fire Orientation

Course purpose: Basic orientation for all employees who will be involved in fire suppression.

S-130 Basic Firefighter

Course purpose: Basic course for firefighters. Includes Air Support - Safety.

S-190 Introduction to Fire Behavior

Course purpose: Emphasize safety and apply fire behavior to fire suppression techniques.

S-211 Water/Pumps
S-212 Power Saws
S-213 Tractors
S-214 Ground Tankers

Course purpose: Technical training in the use of each fireline tool.

S-230 Crew Boss

Course purpose: Training Crew Boss for supervisory position.

S-260 Fire Business Management Principles

Course purpose: An in-depth orientation for most fire job positions in project fire organization at middle levels.

S-270 Basic Air Operations

Course purpose:
1) All types of major aircraft used in fire suppression and support.
2) Air operations organization in fire suppression.
3) Methods of air support and attack on wildfire.
4) General safety in air operations around fixed-wing and rotary-wing aircraft.
5) Construction of helispots.

S-320 Organizing for Fire Suppression

Course purpose: Basic introduction to fire organization and management.

S-330 Sector Boss

Course purpose: Define duties of Sector Boss.

S-331 Crew Liaison Officer

Course purpose: Define duties/responsibilities of a Crew Liaison Officer.

S-355 Equipment Officer

Course purpose: Develop skills for servicing equipment within the service organization.

S-390 Fire Behavior

Course purpose: Trains Sector Boss and higher positions to interpret and predict fire behavior to benefit fire suppression decision making.

Aviation and Safety Management

Objectives:

1. Develop an understanding of roles and responsibilities of an Aviation Management Officer and apply analysis and communication techniques in identifying training needs and solutions to management problems.

2. Select the proper resources, develop a method to control their use, and evaluate the results against predetermined objectives and cost/effective performance.

3. Identify the components of the contracting system, define the responsibilities and roles and relationships between the Contracting Office and Aviation Manager.

4. Develop operational programs which are safety oriented to be implemented at the unit level.

POSITION DESCRIPTION (Please Read Instructions on the Back) (Danny King)

2 Reason for Submission	3 Service	4 Employing Office Location	5 Duty Station
[X] Redescription [ ] Reestablishment [ ] Other	[ ] New [ ] Draft [X] Valid	Ely District	Ely, Nevada
Explanation (Show any positions replaced)		7 Fair Labor Standards Act: [X] Exempt [ ] Nonexempt	8 Employment Information: [ ] Yes [X] No
		10 Position Status: [X] Competitive [ ] Excepted (Specify)	11 Position is: [ ] Supervisory [ ] Managerial [X] Nonsupervisory
			12 Sensitivity: [ ] Critical [ ] Noncritical [X] Noncritical-Sensitive

14	Official Title of Position	Pay Plan	Occupational Code	Grade
a Civil Service Commission				
b Department, Agency or Establishment				
c Second				
d Field Office	Fire Management Officer	GS	401	D 9
e Recommended by Supervisor or Initiating Office				

00302

10/01/79

15 Organizational Title of Position (if different from official title)

17. Name of Employee (if vacancy, leave blank)

a. First Agency in Establishment	c. Third Subdivision
Interior	Ely District
b. First Subdivision	d. Fourth Subdivision
Bureau of Land Management	Division of Operations
c. Second Subdivision	e. Fifth Subdivision
Nevada State	

18. Employee Review - This is an accurate description of the major duties and responsibilities of my position

Signature of Employee (optional)

20. Supervisory Certification - I certify that this is an accurate statement of the major duties and responsibilities of this position and its organizational relationship, and that the position is necessary to carry out Government functions I am responsible. This certification is made with the knowledge that this information is to be used for statutory purposes relating to appointment and payment of public funds and that false or misleading statements may constitute violations of such statutes or their implementing regulations.

b. Typed Name and Title of Immediate Supervisor	b. Typed Name and Title of Higher Level Supervisor or Manager
G. Duncan MacDonald IV Chief, Operations	Neil B. McCleery, District Manager
Signature: G. Duncan MacDonald IV Date: 10/30/79	Signature: Neil B. McCleery Date:

21. Classification/Job Grading Certification - I certify that this position has been classified/graded as required by Title 5, U.S. Code in conformance with standards published by the Civil Service Commission or, if no published standards apply directly, consistently with the most applicable published standards.

22. Standards Used in Classifying/Grading Position

1

Typed Name and Title of Official Taking Action

Mary Schlosser
Bus Class Spec

Signature: M.P. Schlosser Date: 10/31/79

Position Classification Specialist

Information for Employees - The standards [illegible] are available in the personnel office. The classification/job grading [illegible] reviewed and corrected by the agency or the Civil Service Commission. Information on classification/job grading appeals and [illegible] FCSA is available from the personnel office of the [illegible]

23. Position Review	Initials	Date	Initials	Date	Initials	Date	Initials	Date
a Employee (optional)								
b Supervisor								
c Classifier								

24 Remarks

FPL = GS-9

25. Description of Major Duties and Responsibilities (See attached)

5024-105

GPO [illegible]

INTRODUCTION

This is a position in the Division of Operations in the Ely District. The Division of Operations' functions are: support, fire suppression, presuppression, fire rehabilitation, fire management planning and maintenance, construction of watershed, range improvements, and road projects, as indicated through the planning system in the Annual Work Plan. This position is supervisory in nature, supervising up to 24 seasonal employees. He/she serves as the District Fire Management Officer.

A. MAJOR DUTIES

Fire Planning and Use

1. Incorporates fire management considerations in the Bureau Planning System Annual Work Plan(AWP), Unit Resource Analysis (URA), Management Framework Plan (MFP), Environmental Analysis Record (AR) and prescribed burnin plans.

2. Coordinates with Area Managers in developing analysis on the ecological role of fire.

3. Review current literature to evaluate the interrelationships and fire effects on the ecosystems of the Great Basin to develop acceptable management procedures applicable to BLM Lands.

4. Develops and participates in a fire effects study program for the Cold Desert Research Project on the District.

5. Provides guidance to Line Officers and Resource personnel on fire behavior and effects to be used in preparing prescriptions for managed fires and develops suppression of fire effects and ecological principles.

6. Is responsible for District Normal Fire Year Plans and inputs ideas in the National Fire Plan and identifies areas where modified suppression action plans may be feasible, consistent with the ecological role of fire.

7. Works directly with Area Managers in identifying areas where fire management can be incorportated and then assists Area Managers in the development of fire management plans for approval by District Managers and State Directors.

8. Participates in interagency workshops and seminars on ecological role of fire in the environment.

9. Performs duties as leader or member on inter-disciplinary team in order to achieve multiple use and resource objectives through the fire management program.

Fire Suppression

1. Performs as a member of the Nevada State Class II Overhead Team.

2. Develops district policy, guidelines and needs for Strength of Force and equipment levels.

3. Provides managerial guidance for the district fire control program.

4. Performs fire preparedness inspections.

Fire Training

1. Is a qualified instructor for the National Fire Training Courses S-100 and S-200 levels.

2. Trains temporary and permanent district personnel and YACC Emergency Fire Fighters in the use of fire equipment and fire suppression tactics.

3. Maintains and updates a record of qualified district personnel using the National Interagency Fire Qualifications System. Provides these qualifications to the State Office for filling National and State Allocation of Forces for the Class II overhead teams.

4. Is a member of the District training committee and provides a list of qualified candidates for nomination for upper level fire training.

Fire Prevention

1. Develops and implements a fire prevention program for the District.

2. Compiles and evaluates fire occurrence statistics to determine prevention program deficiencies that can be related to man-caused fires. Recommends prevention procedures of vethods to reduce man-caused fires.

3. Investigates and analyses fire causes to initiate appropriate prevention action.

4. Participates in interagency effort to develop coordinated public information on fire hazards, closures and restrictions.

5. Prepares fire prescriptions to reduce accumalting fues hazards.

6. Participates in prescribed fire operations.

Other

1. Is the principal staff assistant to Chief of Operations, delegated to act as Division Chief in Chief's absence.

2. Is responsible for the hiring, training and supervision of 23 seasonals for the fire program.

3. Is a member of the District Fire Rehabilitation Team and provides necassary Fire Management and Fire Control input for development of rehab plans. Also, participates in subsequent execution of approved plans.

4. Develops, administers and coordinates fire operation plans with two Districts of the Humbolt National Forest for exchange Fire Protection on Nation Forest Lands and Bureau Public Lands.

5. Develops , admensters and coordinates an operation plan with the White Pine County Fire Department for mutual protection and assistance on Publec and Private Lands.

6. Makes initial investigation for fire trespass on all fires and coordinates and solicits help form Federal, State and local law enforcement personnel. Incumbent must be aware and understand Federal, State and local laws and regulations pertaining to fire trespass.

7. Incumbent develops timely news releases dealing with all facets of fire management and fire control.

8. Is the District Aircraft Management Officer whose responsibilities will be:
   - a. Insures all aircraft and pilots used on the district meet OAS safety standards.
   - b. Insures all personnel have necessary personal protective clothing for various flying missions.
   - c. Insures that flight plans are filed at the District Office and that on flights are tracked.
   - d. Insures that proper communication equipment and procedures are used.
   - e. Insures that correct contract payment forms are used and that they are filled out properly.

9. Acts as COAR on various District Fire Management and Aircraft management contracts.

10. Performs as the District Search and Rescue program manager and formulates and executes plans for search and rescue on public lands.

11. Is the District Communications Officer and insures coordinated approaches for proper and efficient use of the District radio cache.

12. The incumbent is the Fire Program Equipment Officer and provides proper equipment management, direction and needs analysis.

13. Incumbent is responsible for fire detection planning and based on statisti identifies areas not meeting organization standards. Analyses alternative systems, selects optimun mix and coordinates detection plan developments with cooperators. Documents data and management decisions in detection plan which meets organizational spandards.

14. Evaluates on-going suppression action to determine timing and/or supervises rehabilitation evaluation and planning activities and in the final stages of suppression action coordinates implementation of the rehabilitaion of those resources damaged through the suppression actions.

15. Programs and supervises range improvement and recreation maintenance project work to be carried out by the fire crew.

16. Incumbent serves as a member of the District's Safety committee and is directly responsible for the safety of crews in presuppression, suppressic fire rehabilitation and maintencance.

B. Factors

1. Knowledge required by the position

a. Incumbent must have a Bachelor of Science or higher degree from an accredited institution in Natural Resource or may substitute work experience to equal educational requirements.

b. Incumbent must have a working knowledge of the Bureau Planning system, the National Fire Planning system, Budgeting and Annual Work Planning System, the Gurear's Personnel System, and an understanding of how to integrate fire management data into these systems.

c. The incumbent requires a professional knowledge of ecology. He/She must be able to identify an ecological unit and the role fire plays in the development of this unit with emphases on the Great Basin. This knowledge requires an understanding of plant phenology and identification. The incumbent must also understand plant phusiology to relate plany susceptibility to varying degrees of fire intensity. The effect of fire with respect to fuel loading, plant distribution, aspect, slope, residual soil moisture is also required knowledge of the incumbent.

d. The incumbent must understand the various weather parameters and how they interrelate to fire behvior and fire effects.

e. The incumbent must be able to demonstrate the ability manage 20 persons in a fire operation and have a thorough knowledge of fire suppression organipations, fire suppression strategy and tactics, fire forces capabilities and management of personnel in emergency situations.

f. The incumbent must be knowledgeagle about the OAS and BLM Air Management and Air Safety Regulations.

g. The incumbent must be able to qualify as a Class II overhead Team Member as Fire Boss within one year. He must understand the inter-relationships of fuels, weather, topography, fire physics and fire behavior. He/She must know varying fire strategy in pinyon, juniper, annual grass, brush fuel types and be able to apply the proper tactics in these fuel types. Through this knowledge he/she must review proper cost benefit force mixes and tactical methods.

h. The incumbent must be able to demonstrate his/her capability of communication through oral and written messages.

i. The incumbent must have an understanding of Fire Business Management including impacts of economic stress on cummunities and cost benefit analysis of various alternate methods of solving a problem.

j. He/She must have the knowledge and ability to interpret research papers, bulletins and memos.

k. Must be knowledgeagle or able to acquire knowledge in computer hardware and software that relates to the Burear's fire computer systems.

l. Must be knowledgeable on fire prenention and presuppression systems and equipment.

m. Must be knowledgeable on State and Federal Air Quality Standards.

n. Must have thourough inderstanding and applicability of Federal, State and local fire laws.

o. Must be able to instruct various fire training courses to 20 - 50 students at a time.

2. Supervisory Controls

Has marked freedom from technical control in independently selecting techniques, and establishing methods and procedures for studying and resolving individual problems and situations, and otherwise carrying assignments through to completion. Controversial policy questions are resolved by joint consideration with the supervisor. Completed work is revised for adequacy in meeting program objectives, and for compliance with established policies and regulations. New projects and activities following major changes in policies or programs are planned with supervisors or with resource personnes representing higher levels or organization dureng the course of development.

Is relied upon as the authority within his organization echelons concerning their program function, For this reason, little or no technical guidance is provided exceptin critical or controversial issues. Decisions and recommendations, based upon the application of professional principles and practices, are rarely changed by higher authority except for reasons of new policy.

3. Guidance

The incumbent received guidance from the Chief, Division of Operations and District Manager orally, Bureau manuals, State Office Directives and Washington Office Directives are given as guidance in writing. The incumbent is responsible for interpretation of this buidance and for fulfilling the directed requirements. He/She must be able to use fuels inventory data and vegetative study material in a technically approved method.

Work assignments are provided for in annual plans of work, which usually indicate broad, general objectives, emphasis, and relative order of priority for completion of projects and activities. Basic Bureau policie and multiple-use objectives are provided, but the scope of the assignment is structured only generally.

Employee must use judgment and resourcefulness in interpreting guides in order to effectively deal with changing situations.

4. Complexity

No fire situations are the same and many are non-comparable. Fire crew members are generally recruited with little or no experience. These individuals are from a wide variety of backgrounds and experience, thus training has different emphasis year to year to accomplish the necessary end. Incumbent must be adaptable to new situations, materials and equipment. He/she must display a great deal of tact and understanding couple

with the ability to negotiate contracts and cooperative agreements with other state, county, Federal and private entities.

Work assignments involve a broad spectrum of activities pursued concurrently. They require a skilled and diversified application of knowledge, precedents, techniques and procedures. Technical judgment, initiative, originality, and resourcefulness are required to a high degree in: (1) developing and executing specific plans of action for extensive and complex project assignments, (2) recognizing and implementing new techniques and methods, and (3) overcoming difficult and unusual problems where guidelines are not directly applicable and the ability to coordinate diverse work groups and activities.

The incumbent must provide program direction for four separate programs, (1) fire management, (2) equipment/communications, (3) search and rescue, and (4) aviation management.

5. Scope and Effect

The Fire Management Officer provides expertise as a specialist in Fire Ecology. He/she furnishes advisory, planning or reviewing services on specific problems, projects, programs and functions.

The work accomplished by the Branch of Fire Management provides essential support to all District activities, It involves considerable coordination and affects the manner in which the District natural resource management programs function. Failure to operate effectively will considerably impede the work of others including some operations of other agencies.

The Bureau's Planning System and Environmental Statement schedules as well as the fire season demands flexibility to adjust schedule based on varying conditions to to provide readiness for suppression operations. Failure to meet schedules may result in catastrophic fires.

Other schedules are directed and failure to perform required analysis and complete the work products will impede others in completing their tasks.

6. Personal Contacts

Contacts are with members of the:

a. District Staff

b. State Office Staff

c. Denver Service Center Personnel

d. Boise Interagnecy Fire Center Personnel

e. OAS Personnel

f. U.S. Forest Service District Rangers (2), and Forest Dispatcher

g. Ely City Fire Dept.

h. Pioche Volunteer Fire Dept.

i. Fish and Wildlife Service

j. Nevada Fish and Game

k. Bureau of Indian Affairs Forester

l. National Weather Service

m. FAA

n. City, County, and State law enforcement agencies

o. County and State Hiway Dept.

p. Adjacent District Fire Management Officers

q. Various manufacturer's representatives

r. prospective contractors

s. local businesses

t. area residents

7. Purpose of Contacts

Incumbent is Districts spokesperson and representative on matters concerning his/her major duties. Purposes being: public awareness and support, idea exchange, problem solving, education and above all coordination assuring smooth operation among state, Federal and local entities, thru coordinated planning, identification of mutual problems, integrated operations and negotiating problem solutions.

8. Physical Demands

Demands range from very stressful during actual fire situations, through supervisory responsibilities to strenuous physical demands including exposure to dangerous condition and extended periods of time without rest up to 24 hours without relief.

The job requires the incumbent to maintain a physical fitness level of 45 on the aerobic-carto physical fitness stress test.

9. Work Environment

In the field situation, the incumbent will be exposed to snow, rain, subfreezing temperatures, marginal flying weather, temperatures over 100 F, smoke, dust, wind and sun. He/she will work in mountainous, timbered, rocky terrain and rolling and flat brushland.

Incumbent may ride horses and motorbikes, fly in helicopters and airplanes, and drive motor vehicles of various sizes. He/she will operate various types of equipment including pumps, chainsaws and ground tankers. He/she will have to walk long distances where access by any other means is prohibited.

In the office environment, incumbent will be subject to crowding and excessive noise during construction of a new wing.

III. ACCIDENT TIME AND EVENT SEQUENCE

A. Majors Fire, Number 4020
Individual Fire Report

B. Ely District Time and Event Log

C. Nevada State Office Time and Event Log

MAJORS FIRE - Number 4020

- The Majors Fire (#4020) was discovered on Thursday, July 10, 1980.

- The burn covered a couple of acres. It was burning in white fir. There was a lot of smoldering duff and root material.

- The fire was located approximately 30 miles southeast of Ely, at over 9,000 ft. elevation, on the east side of a ridge. The nearest road was 2 or 3 miles away over the ridge on its west side. The east side of the ridge was very steep - the west side had a little more gradual slope.

- A 4-person initial attack crew drove to a helispot on the west side of the hill, approximately 7 miles from the fire. The helicopter pilot (Marty Smith) felt that was the best place from which to lift them up to the fire.

- The helicopter let the crew off on the ridge approximately 1/8 to 1/4 mile west of the fire, and they walked to it down the extremely steep slope.

- An additional 3-person crew was flown in by helicopter on Friday morning, July 11, 1980.

- The radios the crews took to the fire all had rechargeable batteries. No spare radio batteries had been taken to the fire.

- Dispatch lost radio communications with the fire sometime around noon. Dead radio batteries was thought to be the problem.

UNITED STATES
DEPARTMENT OF THE INTERIOR

INDIVIDUAL FIRE REPORT

1. REPORT STATUS (check one) (2): [X] NEW [ ] CORRECT [ ] DELETE

Reporting Agency (circle one) (13): (1) BLM [2] BIA [3] NPS [4] BSF&W [5] OTHER

2. Calendar Year (3-4)	3. Fire No. (5-8)	4. Reporting Unit (9-12)
80	4020	3204

Area Name (14-17): 048 Schell Resource Area

7. Fire Name (18-27): Majors

8. TYPE: a. Fire (28): 1 b. Protection (29): 1

11. LOCATION OF FIRE ORIGIN (Location plat on reverse of original) (38-57)

a. Coordinates (30-38): Lat. 38 54, Long. 114 36

b. Rectangular Survey (39-52): T. 12 N, R. 65 E, Sec. 12, 21 Mer.

9. CLASS: a. (53): 2 b. Cost (1) Code (54): 3; (2) Actual $:

10. PLANNING DATA

(55-57): 101	b. Class of people (58): 0
(59): 1	d. Resource value class (60): 3
(61): 3	f. Hour control zone (62): 4
(63): 2	h. Resistance to control (64): 2
(65-70): 322	j. Fuel model (71-74): H5

12. SUPPRESSION DATA

	DATE	TIME	TYPE	AMT	ACRES
a. Discovered (9-23)	0710	0930	3		2
b. Reported to Agency (24-31)	0710	0935			
c. First crew/equipment departure (32-41)	0710	0940	4	7	
d. First attack (42-57)	0710	1100	4	7	2
e. Controlled (58-71)	0711	1300			2
f. Declared out (72-75)	0712		g. Total force (76-79)		7

13. BURNED AREA DATA / 14. RESOURCE DAMAGE (Dollars)

STATE (a)	COUNTY, PARISH, OR BOROUGH (b)	OWNERSHIP (c)	VEGETATIVE TYPE (d)	RESOURCE VALUE CLASS (e)	SEVERITY OF BURN (f)	ACRES BURNED (g)	SOIL (a)	WATERSHED (b)	LOCATION (c)	TIMBER (d)	RECREATION (e)	WILDLIFE (f)	GRAZING (g)
(13)	(14-16)	(14)	(15-17)	(18)	(19)	(20-26)	(27-31)	(32-37)	(38-42)	(43-48)	(49-53)	(54-58)	(59-63)
32	033	1	100	3	2	2	00010	00020	00004	00040	00006	00020	00000
TOTALS						2	00010	00020	00004	00040	00006	00020	00000

Submitted by (Signature): [signature]

Title: Fire Management Officer

Date: 7/18/80

Approved by (Signature): [signature]

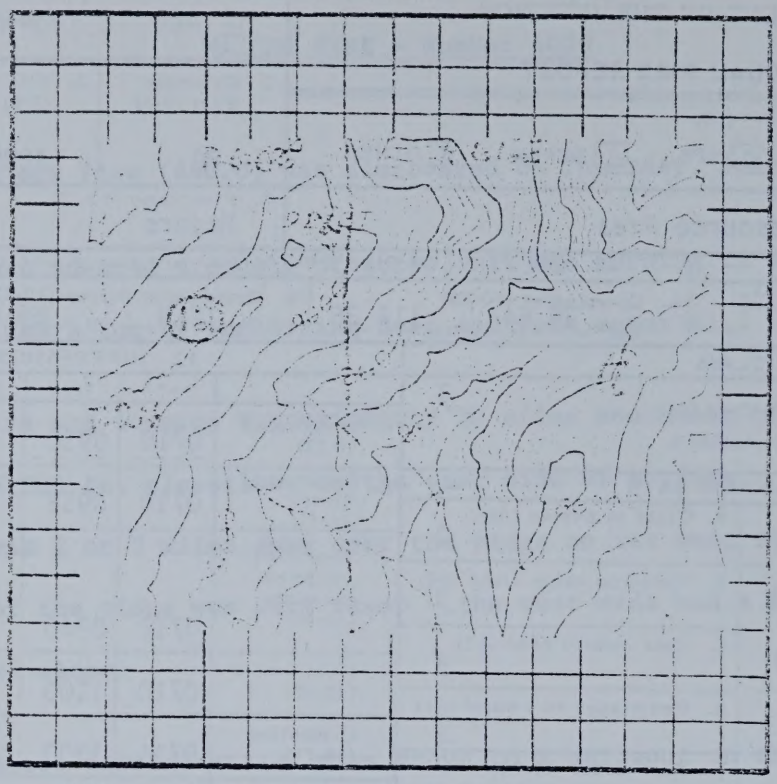
Title: FIRE MANAGEMENT OFFICER

Date: 7-22-80

Form DI-1201 (February 1973)

BLM - DISTRICT OFFICE NPS - AREA BIA - AGENCY BSF&W - REFUGE

LOCATION PLAT SCALE "=1 MILE



T. 12N , R. 65 E. , Sec. NE¼NE¼12, 21 Mer.

Remarks

SCALE 1:500,000

10 0 10 20 30 40 Miles

Revised April 1970

Primary Road

Secondary Road

ELY DISTRICT

TIME AND EVENT SEQUENCE

ELY DISTRICT AIRCRAFT ACCIDENT

by Bob Clithero & Rich Nase

Attached as a part of this sequence are copies of the District Radio Log.

7/11/80 - Friday

1630+ Danny King, FMO, determined that a flight was needed to reestablish radio communications with a crew that had been out on the Majors Fire, #4020, for several days. Because of worn-out radio batteries there had been no contact with the Fire Boss since Friday morning. Since the crew on the fire had been helicoptered in, contact had to be made to establish the demobilization schedule. He considered using the helicopter to reestablish communications, but rejected this option for several reasons; the helicopter was already committed to a resource project 70 miles south of the fire, the cost of ferrytime would be high, it would have cut into pilot duty hours, and when contact was attempted with the helicopter base camp, they had turned off their radio for the day.

1700+ Danny then asked Joe Bass if he knew how to use the parachute to drop batteries to the fire, and Joe felt he could. Dispatcher Cindy Gass called Ely Flying Service and set up the flight.

At this point, the two crewmen on Joe Bass' pumper (Harrison and Hase) cajoled the dispatcher into permitting them to go on the flight.

1831 Aircraft N29089 departed Ely airport.

1850 Last radio contact with aircraft.

1921 Attempted to contact 089. No response.

1931 People from fire reported in by radio and said the drop was very rough.

2035 Dispatch attempted to contact the aircraft on all channels. No response.

2038 Another attempt to contact aircraft failed.

At this point, the local people knew there was a problem. Since the District FMO (King) and Operations Chief (MacDonald) were not in the office they were notified by telephone at approximately 2045.

2100 District Manager (McCleery) was notified. King and MacDonald went to the airport to check if aircraft was there. When the aircraft was not found, they went to the FAA office at the airport.

2136 The radio log at this point gives the first indication that the parachute may have something to do with the disappearance of the plane. The fire crew reported that the chute cleared the aircraft.

At this point, the White Pine County Sheriff was notified and assumed control of the search.

2315 NSO notified that Ely has an overdue aircraft.

2327 Military contract helicopter, Bell Jet Ranger, took off to overfly the area southeast of Ely doing an ELT scan, and the aircraft was equipped with floodlights.

Sheriff mounted a road search during most of the early morning hours.

At daylight, Sheriff sent out 2 Civil Air Patrol fixed wing and 2 helicopters.

1239 Ely contract helicopter B-1, flown by Marty Smith, departed the fire location with Mike Lipka and Wayne Stevens. On the return, they were going to fly over the area where the plane was last seen by the fire crew.

1242 BLM helicopter reported wreckage on the east side of the mountain, and that there didn't appear to be any survivors.

1345 The sighting was confirmed by Army helicopter C109.

Nevada State Office

Ely Aircraft Accident
Log of Activities (N-941)

7/11/80

2340 Rich Nase of NSO Fire and Aviation notified Stuart Cox that Ely D.O. had an aircraft missing. The ship was on a fire mission with three BLM employees and a commercial pilot on board. A search is being conducted by CAP, Sheriff and Air Force. There has been no ELT signal. Flight started at about 1800. Ely dispatch will be manned tonight.

2345 Cox notified John Trimmer of the above information.

7/12/80

1210 Cox meet Trimmer at Engineering Office. 1215 Cox called Nase (882-1358), and NSO fire dispatch (784-5468) and received the following information: The plane left Ely at 1800 with a return ETA to Ely at 2100. They have not yet located the plane, it was last seen over the fire. The fire size is about 1½ acres, location 38° 54' and 114° 36' which is about 20 miles south east of Ely. The ship was a Cessna 206 from the Ely Flying Service. The pilots name is Farrell Gayle. Three BLM temporarys on board. CAP has two fixed wing aircraft in the air and two military choppers are being used in the search. Ground search is being conducted by the Sheriff's office. FAA was notified at 2100. OAS has been notified and John Russell BIFC has been notified. Nase said that Roy Percival had notified Bill Malencik.

1315 Nase called Cox. Wreckage has been sighted, but identification has not been verified on the aircraft. They will put team into the area by chopper. Largest intact piece of aircraft is about the size of a car hood. Wreckage is about 20 miles south east of Ely. Names of two of the BLMers: Tod Harrison, seasonal from Ely D.O., and Danny Hasse also seasonal from Ely D.O. Ely is refusing to release the name of the third person on board. OAS has been notified and has asked assistance from NTSB in the investigation. They are assuming a fatality. Two or three local agency people will accompany the investigative team. Nase will go and possibly Cox.

1325 Attempted to contact Jay Carpenter (811) per manual requirement, but unable to obtain Carpenter's home phone number.

1330 Attempted to contact Paul Lynch of the California State Office to see if he has Carpenter's number. Lynch has an unlisted number.

1325 Trimmer contacted Malencik and filled him in.

1330 Trimmer attempted to contact the State Director, but he will not be in for several hours.

1345 Trimmer and Cox left NSO.

1700 Trimmer notified Cox that he was to go to Ely with Rich Nase at 0730 the next morning.

7/13/80

Cox meet Percival and Nase at 0730 for flight to Ely.

Stu Cox
State Safety Off
LSC N-941

IV. FORMAL GUIDANCE BRIEF RELATIVE TO THE ACCIDENT

A. Regulation and Policy (BLM Nationwide)

B. Regulation and Policy (BLM State of Nevada)

C. Regulation and Policy (BLM Ely District)

A. Regulation and Policy (BLM Nationwide)

1. Federal Air Regulations

Part 65 - Certification of Airmen Other Than Flight Crew Members.

Part 91 - General Operating and Flight Rules.

Part 105 - Parachute Jumping.

Part 149 - Parachute Lofts.

2. Departmental Manual

*Part 110 - Office of the Secretary, Office of Aircraft Services.

*Part 350 - General Program Requirements, General Administration.

3. OAS-Operational Procedures Memorandum - Boise

*No. 80-1 - Requirements for Professional Pilots . . . .

*No. 80-2 - Qualification Standards for Utilization of Air Taxi and Commercial Operators (ATCO).

4. Bureau Manual

Part 1112 - Safety

Part 1525 - Motor Vehicle and Heavy Equipment Management

*Part 9400 - Aviation Operations

*Part 9430 - Aviation Safety

5. Washington Office Instruction Memorandum

IM 79-279 - Aircraft Requirements - Special Use (IM duplicates an issue numbered 79-277)

IM 79-499 - Aviation Operations Minimum Safe Altitude

Facs. Machine No. 80-78 - Unauthorized Paracargo Operations

6. Interagency Smokejumper Aircraft Screening and Evaluation Board

*Contained in BLM Aviation Management Handbook. Each State received a supply in 1979.

Summary of Federal Air Regulations
which Authorize & Regulate Air
Cargo Dropping Operations

Part 65 "Certification: Airmen Other Than Flight Crewmembers"

Subpart F "Parachute Riggers"
Generally outlines requirements and limitations of personnel parachute riggers. No mention of paracargo.

Part 91 "General Operating and Flight Rules"

91.13 Dropping Objects
No pilot in command of a civil aircraft may allow any object to be dropped from that aircraft in flight that creates a hazard to persons or property. However, this section does not prohibit the dropping of any object if reasonable precautions are taken to avoid injury or damage to persons or property.

91.167 "Carrying Persons Other Than Crewmembers After Repairs or Alterations"
States that only necessary crewmembers are allowed on flights after alterations. Door removal is an alteration.

91.15 Parachutes and Parachuting
Basically refers to Part 105. No mention of paracargo.

91.3 "Responsibility and Authority of the Pilot in Command"
(A) The PIC is directly responsible for, and is the final authority as to, the operation of that aircraft.

91.31 "Civil Aircraft Operating Limitations and Marking Requirements"
States that civil aircraft must be operated in compliance with the operating limitations set forth for that aircraft. Need for Spoiler Kit for door-off operations is specified in those operating limitations.

91.63 Waivers
Procedure for obtaining waivers to deviate from certain FAR's

91.203 Carriage of Cargo
Basically sets criteria for securing cargo. No mention of PC.

Part 105 "Parachute Jumping"

Generally describes equipment and operating requirements for making intentional personnel parachute jumps. No mention of PC.

Subpart B para. b. offers an exemption to Federal Agencies making parachute jumps to ground emergencies.

Part 149 "Parachute Lofts"

Requirements for issuing loft certificates and ratings and the holders of those certificates and ratings. No mention of PC.

Summary:

Part 350 DM 2.1 of the DOI Departmental Manual addresses applicability of OAS Operational Procedures Memorandums (OPM) and how these are to be implemented into the bureau directives system.

OPM 80-2: Qualification Standards for Utilization of Air Taxi and Commercial Operators (ATCO). This identifies standards ATCOs must meet and adhere to when operating for the DOI. Specifically, it defines and sets requirements for "Special Use" activities.

OPM 80-4: Aircraft Equipment. This addresses aircraft equipment requirements for special use operations.

Applicable FARs:

91.1 States the applicability of Part 91.

91.31 States civil aircraft must be operated in compliance with the operating limitations (of which the Pilot's Operating Handbook is a part) for that aircraft.

91.67 Carrying of persons other than crewmembers after . . . . alterations. (Door removal is an alteration.)

135.1 States the applicability of Part 135.

135.61 Prescribes flight operation rules of which Part 91 is a part.

23.1581 Addresses material which must be covered in an aircraft manual, placard, etc.

43.5 States that prior to returning an aircraft to service after an alteration, prescribed conditions must be met.

Aircraft Maintenance Manual excerpt: This identifies conditions that must be met for door-off operations.

Pilot's Operating Handbook excerpt: This addresses the spoiler and required placards.

Dept. Manual 110.19.1 (Office of Aircraft Services)

.2F Establishing and maintaining standards governing operational procedures, aircraft maintenance, air crew qualifications and proficiency, and qualif. for maint. personnel (general statement).

.2G Inspecting and monitoring aircraft operations to assure that standards are being met. (general statement)

Dept. Manual 350 DM 1.9 (General Administration)

A(1) Official Passengers. The following categories of personnel are official passengers.

A(1)(a) Officers and employees of the Federal Government traveling on official business.

A(2) Unofficial Passengers. Officers and employees of the Dept. of Interior (DOI) and other Federal Agencies and members of their respective families when traveling for personal convenience.

A(3) Unauthorized Personnel. All personnel not included in either official or unofficial passenger definitions will be considered unauthorized personnel and are not authorized use of any aircraft owned or operated by or on behalf of the Dept. A person who is otherwise an official or unofficial passenger could become unauthorized by performing a function for which that person is not authorized, e.g., an unofficial passenger performing pilot duties without proper authorization.

B. Transportation of Unofficial Passengers

B.(2) Authorization. When such space is available, the official authorizing the flight may approve the unofficial travel as follows:

B.(2)(a) A waiver (release) will be obtained . . . .

B.(2)(a)(i) Waiver form used will have advance approval of the Solicitor as to its legal adequacy. (OAS-115 approved)

350 DM 1 Appendix 1 (Roles & Respon.)

V. Charter and Rental Aircraft Program
V.A. General Functions
V.A.1 (procure aircraft - OAS and Bureau)
V.A.2 (qualify operators - OAS)
V.A.3 (manage and control aircraft-dispatch - OAS and Bureau)

OAS Boise OPM No. 80-1 - Requirements for Professional Pilots - - -.

.2B Crew Member. Person assigned to perform duty in an aircraft during flight time.

.2B(2) Aircrew Member. Flight attendant, jump foreman, cargo loadmaster, photographer, observer, etc., assigned to duty in an aircraft during flight time.

.2B(3) Required Crew Member. A member of the minimum flight crew or aircrew required by the operating limitations of the aircraft flight manual (or other operating requirements for the aircraft) whose function is essential to the safe operation of the aircraft.

.8C Personal Protective Equipment Requirements. All flight crew members, aircrew members and crew members will comply with Attachment No. 3. (Attach. No. 3 states) 7. --and paracargo--

Protective headgear
Fire retardant clothing
Gloves
Boots

OAS Boise OPM No. 80-2 - Qualification Standards for Utilization of Air Taxi and Commercial Operators.

.2H "Special Use" Activities (defined)

(1) All direct fire suppression missions.

(5) Helicopter sling rappelling missions and paracargo (helicopter and fixed wing).

.6 Standards for "Special Use" Activities

Pilots and Aircraft must be inspected and approved.

Pilot Cards and Aircraft Data Cards issued upon satisfactory inspection.

BM 1112 - Safety

.2 Safety Management Information System (SMIS). Incidents involving any unintended, unplanned, or irresponsible occurrence that results in, or could result in, personal injury, property damage, work interference, liability claim, or any combination of these, must be reported immediately to the responsible supervisor who then initiates the Accident/Incident Report, DI-134 - - -.

.21B Supervisors.

.21B.1 Immediately notify the appropriate office head (District Manager, State Director, Director Bureau of Land Management-BIFC, Manager, Outer Continental Shelf, or Service Center Director) and Safety Manager/Coordinator when notified of fatalities or serious accidents and provide all known information and details concerning the occurrence.

.21B.3 - - - It is advisable to notify the Regional or Field Solicitor of all serious incidents.

.21B.4 Initiate the Accident/Incident Report, DI-134, following appropriate investigation.

.21C Responsible Official (District Manager, State Director, - -) upon notification of a serious accident:

.21C.1 Assures prompt and adequate investigation by designating an Accident Investigation Team.

.21C.2 Notifies the Director (100) and the Bureau Safety Manager (811) within 12 hours of fatalities and within 24 hours for other serious accidents - - -.

.21C.3 - - - Reviews Accident/Incident Report, Form DI-134 prior to transmittal to Washington Office.

1525 - Motor Vehicle and Heavy Equipment Management

.9 Official Use of Aircraft and Motor Vehicles. The use of Government-owned or leased aircraft and motor vehicles for other than an official purpose, or the authorization of use for other than official purposes, is prohibited. Statutory provisions require that any officer or employee of the Government who willfully uses, or authorizes the use of, any Government-owned or leased aircraft or motor vehicle for other than official purposes be suspended, without compensation, for not less than 1 month, and be superseded for a longer period or summarily removed from office if circumstances warrant (see .93).

BM 9400 - Aviation Operations

.04D State Directors are responsible for all air operations within their respective areas of jurisdiction. Each one appoints a State Air Officer to provide assistance on all phases of aviation activities. SD's receive technical assistance from BIFC.

.04E District Managers are responsible for planning and conducting air operations in their Districts.

.06E Except for authorized exemptions and waivers (see .1), aircraft leased, chartered, operated, or owned by BLM must comply with FAA regulations (all deviations are issued by FAA).

.21 Planning

.21B Air Operations Plans. Air operation plans including provisions for qualified personnel, approved aircraft and equipment, and adequate communications.

.31F (Contract and Offer for Rental pilot require.)

.31F 2.b Special Use. Pilots listed for use under "Offer for Rental" special use activities must meet pilot requirements as outlined below and must successfully pass an evaluation check flight by a USFS or OAS check pilot. Pilot qualification cards are then issued to qualified operators. Special Use activities are:

(1) All direct firefighting activities.

(4) All operations requiring extensive flying below 500 ft. above ground level.

.34 Air Officers (State and District Requirements) (specific position in District not required, but usually assigned to an individual to meet DM responsibilities as defined in 9400.04E).

(Includes qualif. knowledge, general knowledge, familiarity with air activities in District. If not, should receive training from qualified personnel.)

.34C Project (are many projects that may require use of an air officer - requires specific experience or training as needed for specific operations incl. paracargo operations).

.43A, B (Requires inspection and carding by OAS or USFS) (Special Use Offers require aircraft data cards indicating special use work) (Special use incl. paracargo)

.51 Preflight (requires flight plan using BLM or FAA commo. facilities and manifest incl. passenger names) (See BLM Manual Section 1525 restricting Bureau employees from certain type flights.)

Pilot Qual. Card and Aircraft Data Card (Pilot Qual. - space for cargo dropping; Data Card contains specific check item.

BM 9430 - Aviation Safety

(Accident-Incident Content; basically reporting requirements)

.04 Responsibility

.04B The Pilot in Command is responsible for the safety of the aircraft and personnel from the time he starts the engines for the purpose of flight until he returns the aircraft to a designated parking area, shuts down engines, and secures the aircraft.

.04C The Ramp Manager is responsible for controlling ramp operations, including pedestrian, vehicular, and aircraft traffic; parked aircraft while loading, unloading, and servicing; and for the provision and use of personal protective equipment by ground support personnel.

.31 Accidents. When an aircraft accident or an aircraft ground mishap occurs which causes substantial damage, the head of the local office must notify the BLM Director-BIFC through normal channels. Missing and abandoned aircraft are reported in the same way.

.31A Investigations. OAS is responsible for investigating accidents involving aircraft under the control of BLM. - - - - (also provides for use of the National Transportation Safety Board - NTSB - as requested by OAS).

IM 79-279, Aircraft Requirements - Special Use
(Redirects attention to OAS OPM 80-2)

Special use activities include:

1. All direct fire suppression missions.

3. Helicopter sling and rappelling missions and paracargo (helicopter and fixed wing).

OPM 80-2

(3) Aircraft inspected for compliance with OAS standards - - -.

(5) Pilot Qualification Cards issued upon satisfactory inspection - - -.

(6) Aircrew members required to wear personal protective equipment as stipulated - - -.

IM 79-499, Aviation Operations Minimum Safe Altitude

Any operation, other than emergency rescue or fire suppression, which is to be conducted below 500 feet must have a written safety and operations plan approved by the State Director.

Facsimile Machine No. 80-78, Unauthorized Paracargo Operations

All unapproved paracargo operations will cease. - - - Currently, the Bureau has the following approved operations:

1. Fairbanks, Alaska
2. Anchorage, Alaska
3. BIFC
4. Alaska detail operation in the Great Basin.

INTERAGENCY SMOKEJUMPER AIRCRAFT SCREENING AND EVALUATION BOARD (SASEB)

The SASEB is similar to the Air Tanker Board. It's basic mission is to screen, evaluate and recommend acceptance or rejection of Smokejumper/ Paracargo aircraft. The SASEB reports to Thurston and the U.S.F.S. Chief of Fire and Aviation who serve as Co-directors.

Currently twelve aircraft are approved.

Paracargo-only aircraft have not been specifically addressed by the Board; therefore, existing approval procedures and specs are orientated to combination Smokejumper/Paracargo aircraft.

See Charter in Appendix.

B. Regulation and Policy (BLM State of Nevada)

1. BLM Manual Supplement

Part 1203 - Delegations of Aughority

Part 1212 - State Offices

2. State Office Instruction Memorandums

NV 80-168 (expires 9/30/81)	Hazard Duty Pay
NV 80-221 (expires 9/30/81)	Low Level Flight Operations
NV 80-223 (expires 9/30/81)	Aircraft Rental Provisions
NV 80-230 (expires 9/30/81)	Aviation Management
NV 80-272 (expires 9/30/81)	Aircraft Use and Safety Plans
NV 80-320 (expires 9/30/81)	Aviation Accident Records
NV 80-328 (expires 9/30/81)	Paracargo Operations
FAX to Dist. - Paracargo Operations	

Bureau Manual Supplement - Nevada - 1203 Delegations of Authority

.01 Purpose. This release designates the Acting State Director, Acting State Office Division Chiefs and Acting District Managers in the sequence they are to perform these duties.

.02 Objectives. To provide the Staff Officers and District Managers with an orderly system of authorization to serve in an acting capacity.

.15 Special Delegation to Chief, Protection Staff. Special authority is delegated to the Chief, Protection Staff, Division of Technical Services, to take emergency fire presuppression and suppression action as required.

A. Authority Delegated

1. Authority is delegated to the degree necessary to accomplish the following.

a. To insure that maximum preparedness action is taken to meet anticipated needs during a period of exceptional fire load potential.

b. To insure that maximum fire suppression action is taken on going fires and that adequate support is provided thereto.

2. This delegated authority includes, but is not limited to, the following: placing personnel on alert or on duty status; placement of personnel, supplies, and equipment at strategic locations prior to need; movement of personnel, supplies, and equipment by ground or air transportation; activation and employment of fire overhead teams; and coordination and direction of fire operations.

B. When Exercised. This authority may be exercised by the Chief, Protection Staff, during the following periods, and continuing thereafter until conclusion of the fire operation(s).

1. During the activation period of the Strength-of-Force Plan, or when fire occurrence, lightning incidence, hazard and risk factors and/or predicted or actual fire danger indices indicate the existence of a period of exceptional fire load potential.

2. During going fires in Nevada, or upon receipt of request for support for going fires outside Nevada.

Bureau Manual Supplement - Nevada - 1212 State Offices

.01 Purpose. This release is to clarify lead role responsibilities by State Office Divisions.

.02 Objectives. To provide BLM employees in Nevada with an easy alphabetical reference to State Office functional responsibility. It should be recognized that this guide is not designed to include total involvement of functions. While a division may have a lead role for a function, other divisions may have responsibility for sub-areas or supporting roles. In some functions there are dual leads. The division taking the lead would depend on the nature of the function.

	State Office Lead Role						
Function	State Dir.	Plng & E.C.	Pub. Affrs	Re-sources	Tech Serv-ices	Mgmt Serv	Remarks
Aviation Management					X		
Equipment Operations:							
Aircraft					X		
WCF Motor Fleet						X	
Fire:							
Prevention and Presuppression					X		
Suppression					X		
Rehabilitation Planning				X			

NV 80-168 Hazard Duty Pay - issued 3/12/80
(Redefines Special Use Aviation Activities - provides hazard duty pay for airdropping cargo at less than 500 feet)

NV 80-221 Low Level Flight Operations - issued 4/15/80

It follows that if there are non-hazardous ways of accomplishing the resource inventories, adequate headwork, management decision, and documentation will have to be clearly included that clearly demonstrate why the hazardous method was selected over the non-hazardous method. - - - National policy and technical guidance on low level flying are somewhat incomplete and confusing at this point. As a result, guidance of a policy nature is being prepared in this office, and the Aircraft Safety Plan and Aviation Safety Manual State Office Supplement are currently under revision. - - -

(The Aircraft Safety Plan follows under NV 80-272. An Aviation Safety Manual Supplement has not been written, but will be included in the updated Nevada Search and Rescue Plan.)

NV 80-223 Aircraft Rental Provisions - issued 4/16/80
(Transmits new standard aircraft rental provisions, Form OAS-12B. Provisions address Special Use Activities, Flight Plan, Protective Clothing, Insurance Requirements.)

NV 80-230 Aviation Management - issued 4/18/80
(Transmits Draft Nevada State Office BM Supplement Part 9400, Aviation Management, to District Managers for their guidance during 1980.)

.01 Purpose: This supplement sets forth objectives, policies, responsibilities, and procedures for the Bureau's Nevada Aviation Management Program.

.02 Objective: The objective of this Aviation Management Supplement is to provide guidance for establishing an aviation management system and operating a cost effective program consistent with safety.

.04 Responsibility: - - - District Air Officers are appointed by the District Manager and are responsible for coordinating the aviation programs in their respective districts.

.12 Air Operations Plan. Each District Air Officer will complete as necessary a comprehensive air operations plan to supplement directives under paragraph .11 (OAS Regulations). These plans will include, at minimum:

A. District or project aircraft use/management guidelines.
C. Specific safety procedures for operations being performed.
D. Air organization and responsibilities.

.22 Organization: - - - including a nucleus of well trained and "qualified" personnel. The level of responsibility and authority must be written and clearly defined, i.e.:

A. Job assignments.
B. Chain of command responsibility.
C. Instruction and decision making responsibility.
D. Overall objectives of the project.
E. Smooth and efficient completion of the project consistent with safety.

.3 Qualifications. (Defines qualifications for State Air Officer, District Air Officer, Project Inspector, Aerial Observer, and Aircraft Manager)

.42 Pilots: (Reiterates special use requirements.)

.43 Approved Aircraft: (Reiterates special use requirements.)

.51 Offer Aircraft: - - - The State Air Officer will annually solicit offers for rental of aircraft services and distribute those offers to the Districts.

.57 Flight Following. For all Bureau monitored flights, a minimum of 30 minute check-in by radio is required. Radio check-ins will be recorded at the local office on a radio station log, BLM Form 9120-1. It is mandatory that the local office man the radio whenever an aircraft is airborne. - - - In areas without radio coverage, a radio check-in prior to entering the area is required. The Aircraft Manager will provide the flight following dispatcher with a description of the area to be covered, planned direction(s) of flight, altitudes to be flown, and specify a time when radio contact is expected to be re-established.

NV 80-272 Aircraft Use and Safety Plans - issued 6/4/80

(Reiterates Flight Following, Flights Below 500 feet, Protective Clothing, Height-Velocity Diagram for Helicopters, and a vehicle to share aviation information between Districts.) (A written and approved Aircraft Use and Safety Plan not required for emergency search and rescue and fire suppression probably due to needed response time.)

NV 80-320 Aviation Accident Records - issued 7/24/80

(Sets up a central file at the Nevada State Office for all records and written material concerning the Ely aircraft accident.)

NV 80-328 Paracargo Operations - issued 7/28/80

(Restricts paracargo operations to Fairbanks, Alaska; Anchorage, Alaska; BIFC; and the Alaska smokejumper detail operation in the Great Basin.)

If paracargo services are required in Nevada, contact the Nevada State Office, Fire and Aviation Management.

FAX to Districts - Paracargo Operations - issued 7/22/80

- - - No aircargo operations are approved in Nevada. Any paracargo services required in Nevada will be supplied by BIFC upon request. Instruction Memo to follow.

C. Regulation and Policy (BLM, Ely District)

1. District Office Instruction Memorandums

NV 040-79-3 (expires 9/30/80) Aircraft Management

NV 040-79-4 (expires 9/30/80) Ely District Safety Policy

NV 040-79-3 Aircraft Management - issued 1/2/79

B. The Fire Management Officer will serve as the District Aircraft Management Officer, through whom all aircraft operations shall be coordinated.

C.1 Flight Plans - - - In addition, each flight will require a BLM Flight Plan Record (NSO 9400-4) to be filled out by the BLM employee. - - - One copy will be carried on the aircraft to serve as a passenger manifest.

C.2 Flight Communications There will be a ground dispatcher on duty at all times while an aircraft is in the air. - - - The dispatcher will notify the Air Officer immediately when a flight begins, terminates, or a radio report is overdue. - - -

Flight routes will be posted on a flight tracking board and scheduled flight report times will be noted. Aircraft will report takeoff and landing. Once a flight has begun and until it is terminated, a radio report will be made to the ground dispatcher at least every 30 minutes preferably on the hour and half hour. The dispatcher will initiate a communications search for any aircraft not reporting within 15 minutes of the scheduled time. Aircraft failing to report within 30 minutes of scheduled check-in time will be reported to the FAA as an overdue aircraft with a request for search initiation.

C.4 - - - Each aircraft operation will be assigned an aircraft manager; if only one person is on the flight, he/she is the aircraft manager. The person assigned should be the most knowledgeable aircraft manager in the group that will be working with the aircraft. It will be his/her responsibility to see that the correct procedures are followed.

He/she will check the aircraft data card and inspect the pilot's Qualification Card to insure the aircraft and pilot have proper credentials.

He/she is also the person who is required to terminate unsafe flights. - - -

C.5 Special Use Activities. There are times when aircraft are needed to perform "special" flying missions. These activities involve:

g) Helicopter sling and rappelling missions and paracargo (helicopter and fixed wing). - - -

Offer for Rental - All "special use" aircraft must meet FAR standards and have a current aircraft data card which indicates the aircraft suitable for the "special use" work. Pilots operating "special use" aircraft must have Pilot Qualification Cards appropriately marked to indicate understanding and ability to perform these special operations. "Special use" activities fall into two categories:

a. Fixed Wing

5) Paracargo

Personal Protective Equipment - Personal protective equipment is that protective equipment which the individual would bring to the flight - - includes, but is not necessarily limited to, boots, gloves, protective headgear, and fire resistant clothing.

Those personnel required to adhere to these provisions are as follows:

a) Pilots. - - - Pilots used on occasional charter or rental are exempt from this requirement.

b) Crew Members. All personnel, including contractor and DOI employees, who are considered a part of the crew complement and are necessary for the accomplishment of the mission. This includes technical observers and equipment operators normally involved in the selected operation, but does not include occasional passengers or observers. - - - The requirement for items of personal protective equipment includes the requirement that such equipment be worn or otherwise utilized in the manner for which it is intended, - - -.

C.7 Accidents and Incidents. Any aircraft incident or accident will be immediately reported to the State Director (N-940). - - -

NV 040-79-4 Ely District Safety Policy - issued 1/26/79

Aircraft - All personnel who are involved in aircraft operations will follow all procedures of the District's Air Safety directives, wear the protective clothing required, as well as attend air safety training.

V. PRE-FLIGHT EVENT SEQUENCE

Pre-Flight Event Sequence

A sequence of events occurred prior to the flight, which contributed to the accident. These events were examined from the standpoint of cause-effect relationships.

Written policy guidance exists to control a paracargo operation. In order to draw any conclusions, the Team examined selected employees' perception of available policy guidance. By examination of the events, applicable policy guidance, and employees' perception of available policy guidance, positive recommendations can be made to mitigate a similar circumstance. Following is the Team's examination as substantiated by interview and written material.

1. Flight and Mission Ordered

The objective of the flight was to re-establish radio communication with the "Majors Fire" by paracargo dropping of radio batteries from a Cessna 206.

Formal guidance requires a paracargo drop be conducted from a government approved/carded aircraft and by an approved/carded pilot to specifically conduct this operation. Paracargo is defined as a special use activity. References are OAS-OPM-80-2, BM 9400, IM-79-279, IM-NV-80-221, and IM-NV-040 (Ely District)-79-3.

Danny King, as the Ely District Fire and Aircraft Management Officer, authorized the flight and mission, not considering it a "special use activity", which in turn would have required an appropriately carded aircraft and pilot. Approval and carding to conduct paracargo missions had not been done on the specific aircraft nor for the specific pilot, although general use carding had been completed. This non-recognition of special use affected the necessary authorization of Daniel Hase and Todd Harrison to accompany the flight and will be discussed later.

At this point, it is necessary to relate Danny King's perception of guidance as it applies to the decision.

a. Did not relate use of the parachute to a paracargo operation as it applies to special use activity. This viewpoint is the same as Mr. King's supervisor, Duncan MacDonald.

b. It was a small operation which didn't require much knowledge to accomplish the task.

c. Didn't connect guidance to the act (parachute drop).

d. Equated paracargo to volume, routine operation, specialized aircraft, and done on a regular basis as a permanent job.

e. Equated the subject parachute mission with dropping a streamer out of an aircraft, which normally is not considered special use.

By not recognizing this particular parachute drop situation as a special use activity, Danny King followed approved procedures in authorizing the involved aircraft and pilot. Non-special use activities do not require the government approval/carding.

Prior to the flight being authorized/approved, Danny King had a discussion with Joseph Bass, who was assigned to the mission and would be responsible as the paracargo dropper. Mr. King asked Mr. Bass if he knew how to operate the parachute, to which Mr. Bass replied that he was sure he did. Mr. Bass checked out the chute and decided he would be able to do the drop. Additionally, Mr. King discussed with Mr. Bass that the limiting factor to delivery by parachute was the size of the aircraft window, since this was the intended parachute exit. The decision to use this type exit resulted from a previous discussion, prior to the fire, between Mr. King and Mike Lipka, who had originally acquired the parachute. Mr. King did not know that a removed aircraft door would be used to exit/deliver the parachute until after the accident had occurred. The significance of this is that a removed door also moves the operation into a special use activity.

2. Flight Ordered from Vendor

Danny King instructed Cindy Gass, Chief Dispatcher, and Joseph Bass to make arrangements with Farrell Gale, pilot/owner of Ely Flying Service to see if a flight could be arranged to recon a fire and possibly drop some radio batteries into the crew on the fire.

Since the flight was authorized by Mr. King and not considered special use, the ordering procedure was normal, routine, and approved relative to guidance.

By not questioning the ordered flight, it is assumed Ms. Gass and Mr. Bass perceived the mission to be normal, not special use, or lacked the knowledge to ascertain the difference. Available training records for these two employees indicate minimal formal training in aviation management functions.

Mr. Gale was contacted by telephone regarding the mission, and he replied, "Come on out. I'll fly you." Interview with the flying company mechanic indicates that Mr. Gale kept a file of Bureau and OAS guidance in his files. No finding was made as to Mr. Gale's knowledge of this filed guidance or extent available. Mr. Gale's mechanic, Scott Brown, stated that Mr. Gale complied with these requirements as fully as possible.

3. Authorization of Extra Passengers - Daniel Hase and Todd Harrison

If the flight had been considered a special use activity, specific guidance, OAS-OPM 80-1, restricts passengers to crew members whose function is essential to the safe operation of the aircraft. However, the perception of personnel involved was that the mission classified as general use. Under these circumstances, it is normal to allow other fire personnel on board in a training/observer/orientation mode.

At this point in time, Danny King, who normally would authorize additional passengers, was at a dinner party and could not be reached. Mr. Hase and Mr. Harrison approached the dispatcher, Cindy Gass, and pleaded to be allowed on the flight. Cindy replied no, since these two employees had been given another work assignment by Danny King. With continued argument, Cindy relented by leaving the decision up to the pilot, Farrell Gale, who said it would be fine and to come out. Joe Bass was present during the dispatcher discussion and agreed it was a good idea to refer the decision to the pilot.

Cindy Gass stated she had not previously been instructed on passenger authorization. By interview with Danny King, he said Cindy did have authority to authorize passengers after regular office hours.

4. Airport Pre-Flight Activity

When the three Bureau employees arrived at the airport, a decision was made to remove the front cargo door to facilitate the paracargo delivery. Findings do not identify who made this decision. The pilot, pilot's son, and the three Bureau employees were present during this pre-flight activity.

With removal of the door, two parts of the Federal Air Regulations provide guidance. Part 91.167 states that only necessary crew members are allowed on flights after alterations. Door removal is an alteration. At this point, Mr. Hase and Mr. Harrison should have been cancelled as passengers. Part 91.31 states that civil aircraft must be operated in compliance with the operating limitations set forth for that aircraft. A need for spoiler kit to be installed for door-off operations is specified in those operating limitations. A kit was not installed. Part 91.3 states that the pilot in command is directly responsible for, and is the final authority as to, the operation of that aircraft.

Door removal is considered special use activity in terms of OAS and Bureau Guidance. In respect to the BLM, Ely District guidance, IM 040-79-3, section C.4 states each aircraft operation will be assigned an aircraft manager. The person assigned should be the most knowledgeable aircraft manager in the group that will be working with the aircraft. It will be his/her responsibility to see that the correct procedures are followed, including checking of carding as applicable. He/she is also the person who is required to terminate unsafe flights. Since Joe Bass was the only employee authorized by Danny King, it is presumed that he was responsible to fulfill these aircraft manager tasks. Contrary to formal policy guidance, the flight took place.

Joe Bass had an acquaintance with parachutes, since he had been a skydiver and had served in the military airborne. Pilot Farrell Gale's son stated that before flight, the Bureau personnel showed Mr. Gale and his son how the parachute operation should work. This finding is noted, since some civilian paracargo procedures are the reverse of military procedures. This is discussed later under the section titled, "Hardware and Facility Considerations".

The Fact Finding Team could find no evidence that any involved individual knowingly circumvented policy guidance.

Review of available guidance indicates adequate "policy" exists to accomplish the task safely. However, definitions of terms used in policy statements are lacking. As an example, special use activities in BM 9400 states, "paracargo and reconnaissance (low level)." No definitions are given. In the same category, OAS-OPM 80-1 states, "all direct fire suppression missions (e.g., all helicopter, lead plane, and smokejumper operations)." Is a normal fire recon special use or general use?

The Team could not find adequate formal technical guidance to accomplish the task safely. As an example, no formal guides or standards could be found that describe the qualifications of a paracargo dropper.

VI. FINDINGS AND RECOMMENDATIONS

A. Application of Guidance

B. Hardware and Facility Considerations

C. Personnel Awareness of Guidance

Application of Guidance

(Findings and Recommendations)

General Findings:

A. Special Use Activity Carding and Certification

The District FMO/Air Officer and the Chief, Division of Operations, both feel strongly that the Ely District does not engage in special use activities. Dan King, FMO, reported that he did not think of the flight as a special use mission, nor as a paracargo operation. It was his intention to conduct a fire recon, and if it were possible, firefighter and former military paratrooper, Joe Bass, was to drop a package containing radio batteries through an open window in the aircraft. Bass was instructed by King to check with pilot Farrell Gale to see if this could be done.

OAS-Safety Manager, Bill Rainey, reported that Farrell Gale was carded by OAS in January 1980 for low-level flight in connection with animal damage control. Scott Brown, Ely Flying Service, reported that Bob Hendricks, R-4, USFS, Ogden, Utah, carded the Cessna aircraft, N29089, on April 11, 1980. There was some confusion generated over the carding of Ely Flying Service earlier in the year when Nevada Division of Forestry Chief Pilot Charles V. Destree was instructed by Frank Wiggins, Chief Dispatcher of the Humboldt National Forest, Elko, Nevada, not to inspect Ely Flying Service. Destree, who acts as a designated pilot and aircraft inspector for the Forest Service in Nevada, was pulled off the case by Wiggins because Wiggins had a standing disagreement with Farrell Gale over charges to the Forest Service for previous services rendered.

On April 1, 1980, Mr. Hendricks also qualified pilot Farrell Gale for (1) Single Engine, (2) VFR Only/daylight, and spray/seed. This is valid until May 30, 1981.

B. Aircraft Tracking

According to the district radio log, the last radio transmission from the aircraft was made at 1850 hours on July 11, 1980. At 1921 hours, or 31 minutes later, Dispatcher Cindy Gass attempted to contact the aircraft without success. Subsequent calls to re-establish contact with the aircraft were made at 1929 hours, 2035 hours, and 2038 hours. At 2000 hours, FMO Danny King was informed that the dispatcher could not contact the aircraft. At 2020 hours, or one hour after a check-in was due, Dispatcher Gass called the airport to see if they knew anything about the flight. They did not. At this point, the dispatcher called FMO King and reported this information. He instructed her to notify FAA. At 2030 hours the dispatcher made this report to the FAA. At this point the search began. It appears that the aircraft tracking system works. Unfortunately, in this case, the flight became overdue just at darkness and rescue was further compounded by the failure of the ELT on the airplane.

Form 1240–7
(July 1967)

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

EVALUATION WORK SHEET

Date	Work Sheet Number
8/7/80	1-19

Office: Ely District, Nevada

Type of Evaluation: Aircraft Accident Fact Finding

By *(office)*: State Director, Nevada, Appointed Team

Activity: Fire and Aviation Management

Aviation Organization Framework

Findings

There appears to be some confusion within the district involving aviation management responsibilities. Several persons, including Chief of Resources, George Cropper; Chief of Operations, Duncan MacDonald; and District Air Officer, Danny King, appear to have overlapping responsibilities which have not been clearly defined. Some of these overlapping responsibilities are in Annual Work Plan inputs, Safety, flight ordering, flight scheduling, and passenger authorization. This confusion exists through the Fire and Aviation organization. As examples, consider Dispatcher Cindy Gass's confusion as to who has authorization to approve passengers and specific responsibility of aircraft manager, as in the case of Joe Bass.

Recommendations

Nevada IM 80-230 transmits the Nevada BM Supplement on Aviation Management. The supplement requires job accomplishment by qualified personnel, with the level of responsibility and authority written and clearly defined. The position description is the only written document found which addresses this area. Using Danny King's P.D. as an example, it falls short of the intent expressed in the supplement. It is recommended that the affected position descriptions be amended and the required definition be expressed through District Instruction Memorandum or District Aviation Management Plan.

FINAL REVIEWING OFFICER	Date	Signature

FOLLOWUP

Assigned to *(office)*

Date assigned	Completion deadline *(60 days)*
Date completed	Action officer

GPO 836-774

Form 1240-7
(July 1967)

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

EVALUATION WORK SHEET

Date	Work Sheet Number
8/7/80	2-19

Office
Ely District, Nevada

Type of Evaluation
Aircraft Accident Fact Finding

By *(office)*
State Director, Nevada, Appointed Team

Activity
Fire and Aviation Management

Aircraft Procurement Procedures

Findings

There are ten non-Fire people in the District authorized to procure aircraft services, as referenced by IM Ely 79-15, dated September 25, 1979.

Recommendations

The District clarify the role of the ten individuals for (1) administratively ordering flights, and (2) assuring a favorable cost-effective ratio, as contrasted to (3) the role of the District Air Officer for approving flights from the standpoint of safety and regulatory compliance. In the case of Item No. (3), Actings must be identified and without this specific approval, the flight will not go.

The District Air Officer and Actings must have training and experience to adjudicate Item No. (3).

FINAL REVIEWING OFFICER	Date	Signature

FOLLOWUP

Assigned to *(office)*

Date assigned	Completion deadline *(60 days)*
Date completed	Action officer

GPO 836-774

Form 1240-7
(July 1967)

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

EVALUATION WORK SHEET

Date	Work Sheet Number
8/7/80	3-19

Office
Ely District, Nevada

Type of Evaluation
Aircraft Accident Fact Finding

By *(office)*
State Director, Nevada, Appointed Team

Activity
Fire and Aviation Management

Aircraft Passenger Authorization Procedures

Findings

For non-fire flights, the passenger authorization procedure is part of the aircraft procurement/flight authorization procedure. Existing procedure is excellent and should be continued, subject to Worksheet #2.

For fire flights, no formal passenger authorization procedure is required. The Chief of Operations and/or District Fire and Aviation Management Officer orally approve the flight and passengers. A flight plan/passenger manifest is prepared. However, no authorizing official's written approval is required. This deviation from administrative procedures is accepted due to emergency nature of fire, required immediate response time, and 24-hour operations.

Recommendations

Even in emergency fire operations, a positive authorization procedure is required. Aviation is too complex a matter to expect procedure compliance without positive control. Positive does not imply the necessity for written and signed documentation prior to flight. It may include specifically identified authorizing officers, who by telephone direct District Dispatch as to passengers. Dispatch can document the authorizing officer on the passenger manifest. Using this procedure, no one but the identified authorizing officers have approval authority, no unauthorized passengers are allowed, and in lieu of approval, the flight does not take place. This requires informed personnel as to procedure, including written levels of responsibility and authority as discussed in Worksheet #1. Further, it requires the authorizing officer have training and experience in terms of adjudicating safety and regulatory compliance.

FINAL REVIEWING OFFICER	Date	Signature

FOLLOWUP

Assigned to *(office)*

Date assigned	Completion deadline *(60 days)*
Date completed	Action officer

GPO 836-774

Form 1240-7
(July 1967)

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

EVALUATION WORK SHEET

Date	Work Sheet Number
8/7/80	4-19

Office
Ely District, Nevada

Type of Evaluation
Aircraft Accident Fact Finding

By *(office)*
State Director, Nevada, Appointed Team

Activity
Fire and Aviation Management

Communication System

Findings

FMO Dan King reports that the radio equipment he is provided, for use in reconnaissance aircraft, is inadequate. As regards the adequacy of the District-wide system, he reports that it, too, is inadequate during the field season. Reasons for this are increased traffic from the Ely District and from slop-over via the repeater from all adjacent districts.

Similar conclusions have resulted from State Office and Denver Service Center studies of Nevada communications. This inadequacy contributes to hazard conditions.

Recommendations

Previous studies and program requests should be reviewed and resubmitted. Ongoing communications upgrade should be examined further by the W.O. to determine if the Bureau is going to go far enough to solve the problem.

FINAL REVIEWING OFFICER	Date	Signature

FOLLOWUP

Assigned to *(office)*

Date assigned	Completion deadline *(60 days)*
Date completed	Action officer

GPO 836-774

Form 1240–7
(July 1967)

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

EVALUATION WORK SHEET

Date	Work Sheet Number
8/7/80	5-19

Office
Ely District, Nevada

Type of Evaluation
Aircraft Accident Fact Finding

By *(office)*
State Director, Nevada, Appointed Team

Activity
Fire and Aviation Management

Military Aircraft

Findings

Military aircraft are flying very low in areas in which Bureau aircraft operations are being conducted. Danny King has contacted the military, and they have agreed to notify the District Office that they will be flying in an area in a general time period. Upon such notification, the BLM pulls all aircraft out of the area. Danny does not feel that he is getting full notification. Flying incidents occur without BLM being notified. This practice creates a serious safety hazard.

Efforts by the District and State Office to correct the situation have not been successful. Some/most of the problem appears to be coordination between military bases which originate flights.

Recommendations

Prepare an incident report for each and every near miss occurrence. Transmit the report immediately to the Base Commander in the area of incidence. Retain documentation of the notification. Continued violation of the Bureau and Military notification procedure should be brought to the attention of the W.O. (740) who can make appropriate contacts with military counterparts at that level.

FINAL REVIEWING OFFICER	Date	Signature

FOLLOWUP

Assigned to *(office)*

Date assigned	Completion deadline *(60 days)*
Date completed	Action officer

GPO 836-774

Form 1240-7
(July 1967)

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

EVALUATION WORK SHEET

Date	Work Sheet Number
8/7/80	6-19

Office: Ely District, Nevada

Type of Evaluation: Aircraft Accident Fact Finding

By *(office)*: State Director, Nevada, Appointed Team

Use of Rechargeable Batteries with Personal Portable Radios

Activity: Fire and Aviation Management

Findings

The parachute was obtained after an incident involving personal portable radio battery failure and efforts to re-supply.

Charged personal portable batteries are lasting 4-8 hours before needing recharge. Dry batteries are lasting for days and weeks, depending on use, before needing replacement.

Field employees, when away from their rigs, carry spare batteries only infrequently.

Proper recharging of batteries is a hassle.

Use of rechargeable batteries works well with regular, predictable operations such as building security or some police forces. Communication failures, due to battery problems, can be expected to occur more frequently when using rechargeable batteries for irregular, unpredictable work, such as BLM field operations.

Recommendations

1. Discontinue use of rechargeable batteries with personal portable radios. Switch to dry batteries. (Except for the one personal portable used as a porta-mobile. That type of operation requires a rechargeable battery.)

2. Establish a policy requiring all employees to carry a spare dry battery when using a personal portable radio in the field.

FINAL REVIEWING OFFICER	Date	Signature

FOLLOWUP

Assigned to *(office)*

Date assigned	Completion deadline *(60 days)*
Date completed	Action officer

GPO 836-774

Form 1240-7
(July 1967)

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

EVALUATION WORK SHEET

Date	Work Sheet Number
8/7/80	7-19

Office
Ely District, Nevada

Type of Evaluation
Aircraft Accident Fact Finding

By *(office)*
State Director, Nevada, Appointed Team

Activity
Fire and Aviation Management

Fatality Reporting and Handling Procedures

Findings

The aircraft accident resulted in four fatalities. The District Manager and his staff found themselves in a highly emotional and sensitive position of handling numerous details, including reporting to higher headquarters, notification of next of kin, dealing with the mortuary, autopsy requirements, claims, etc. Although some guides are exact, they are not clear nor in a single source.

Other fatalities have occurred in BLM operations over the years, and recommendations have been made for written guidance, but none have been prepared, i.e., Board of Review, Battlement Creek Fire #1173, August 20, 1976.

Reporting this accident to the headquarters office was complicated by the fact that one Bureau reporting contact, the W.O. Safety Officer, has an unlisted telephone number.

Recommendations

That the W.O. prepare written, inclusive guidance in a single booklet form, outlining all appropriate procedures to be followed whenever fatalities occur to government personnel engaged in official business, or other persons on public lands.

That the W.O. accident reporting procedures, including listed telephone contacts, be clarified with current listed telephone numbers.

FINAL REVIEWING OFFICER	Date	Signature

FOLLOWUP

Assigned to *(office)*

Date assigned	Completion deadline *(60 days)*
Date completed	Action officer

GPO 836-774

Hardware and Facility Consideration

(Findings and Recommendations)

General Findings:

A. PARACARGO PROCEDURES FINDINGS
8/5/80

Based on the NTSB interviews and discussions with Scott Brown of Ely Flying Service, the following conclusions can be made:

1. The cargo chute cargo attachment strap was anchored to an aircraft seat leg. The cargo was attached to the apex of the parachute.

2. The system was not attached to the aircraft through a 500# weak link.

3. The system was not anchored to an anchor cable or a floor ring.

4. The kicker was not wearing a restraint harness.

5. A static line of approximate 9' length was not used.

These five findings are all contrary to procedures followed by established BLM-AK Paracargo operations; however, National approved procedures do not exist.

B. PARACARGO FACILITIES FINDINGS
8/5/80

1. No designated facilities for rigging or storing paracargo or chutes existed.

C. RIGGING SUPPLIES FINDINGS
8/5/80

1. No cargo straps or loops existed for bundling paracargo.

2. No break-tape or 8 cord existed for rigging cargo chutes.

D. EMERGENCY KNIFE DISCUSSION

It has been common practice for at least 15 years among Smokejumper units to install a readily accessible knife next to the door when dropping jumpers or cargo. The theory is that any entanglement which threatens the aircraft would be cut free.

Had a knife been available to Bass, there is some remote possibility that he could have cut enough shroud lines as the canopy was trying to inflate so that it would not have inflated.

Again, it must be emphasized, the above paragraph is pure conjecture.

E. 500# WEAK LINK DISCUSSION

Past incidents involving cargo entangling with the 3,200# tensile strength static line as it tumbled out the door were not uncommon. This situation normally involved at least minor damage to the aircraft when the entangled cargo was snatched into temporary tow behind the aircraft.

As a result of a near tragic entanglement incident 4 or 5 years ago in New Mexico, FS and BLM Smokejumper units agreed to install a 500# tensile strength "weak link" either in the static line or between the aircraft attachment point and the static line. Subsequent cargo entanglements have resulted in this weak link breaking, allowing the entangled cargo and chute to "auger" without damage to the aircraft.

It is conceivable that if a weak link had been used at point of attachment, the chute would have broke free the instant it caught first air. The odds of it then entangling in the aircraft tail are unknown.

It must be noted that the above paragraph is esentially irrelevant to this accident. It is probable that if the victims had knowledge of weak links and their need, they would have known the correct cargo chute attachment sequence also.

F. CONFIGURATION OF AIRCRAFT FINDINGS

Based on FAR's and some practices common to established BLM paracargo operations, the C-206 was not properly configured or equipped for paracargo.

Specifically:

FAR 91.3. states that "aircraft must be operated in accordance with the operating limitations for that aircraft." The C-206 Pilot's Operating Handbook specifies that when both doors are removed, a spoiler kit must be installed which includes a flap switch depressor.

Through discussions with Scott Brown, it was learned that the kit was not installed; however, only the front cargo door was removed. C-206 Manuals do not address this situation so the only clear-cut inadequacy was the lack of a flap switch depressor which would be needed any time the front door was removed. The consequence of this oversight would be that the flaps were locked into the UP position.

Commonly used accessory equipment by established BLM and USFS Paracargo Operations include an emergency knife located near the open door and a safety strap across the door.

According to Scott Brown, neither piece of equipment was installed.

G. PARACHUTE ORIGIN, TYPE AND CIRCUMSTANCES - 8/5/80

1. The chute was a 10-foot diameter round canopy packed in a standard USFS cargo chute container with a "jap" ring attached directly to the Apex.

2. It was acquired in March from the Missoula Smokejumper Center by Mike Lipka.

3. Lipka acquired the chute after an incident involving some resource people who developed radio battery problems while on field assignment. Due to failure of radio contact, Ely dispatched Lipka in an aircraft to check on the people. He had no problem locating them, and it was then that he decided a small cargo chute would be hand for dropping batteries and other small items in similar situations.

4. After receiving the 10-foot chute, he broke it down and re-rigged it.

5. He had future plans for establishing a small, incidental paracargo capability, but had not proceeded with any phase of planning or training except for the chute acquisition.

H. PERSONAL OBSERVATIONS ON MIKE LIPKA'S INVOLVEMENT WITH ELY AIRCRAFT ACCIDENT BY ALAN DUNTON

Lipka's only involvement with the accident was that he acquired the parachute. He was Fire Boss on the fire and had no knowledge that the chute was going to be used.

Mike was an experienced cargo chute rigger and had assisted on cargo drops while employed as a Missoula Smokejumper.

He had enough knowledge so that he knew there were several things he needed to find out prior to pursuing a C-206 paracargo operation, i.e., door off approval, configuration and a procedures SOP.

He unquestionably had the knowledge to attach the cargo to parachute to aircraft correctly.

I. ALAN DUNTON THEORY ON REASON FOR REVERSED CARGO CHUTE ATTACHMENT

Joe Bass's experience with parachutes was limited to personnel parachuting only.

The T-10 system used by the military airborne utilizes a deployment bag which contains the parachute. Once the deployment sequence is complete, the bag remains attached to the aircraft via a static line. The chute separates from the bag. See Illustration #1.

The BLM/USFS cargo chute system is significantly different. The chute is contained in a container bag which is somewhat similar in shape to a deployment bag. A static line is normally attached to the apex of the chute. During deployment, the static line pulls the chute out of the bag until full canopy and line stretch occur, and then the chute breaks free of the static line. The bag stays with the parachute. Only the static line remains attached to the aircraft. See Illustration #2.

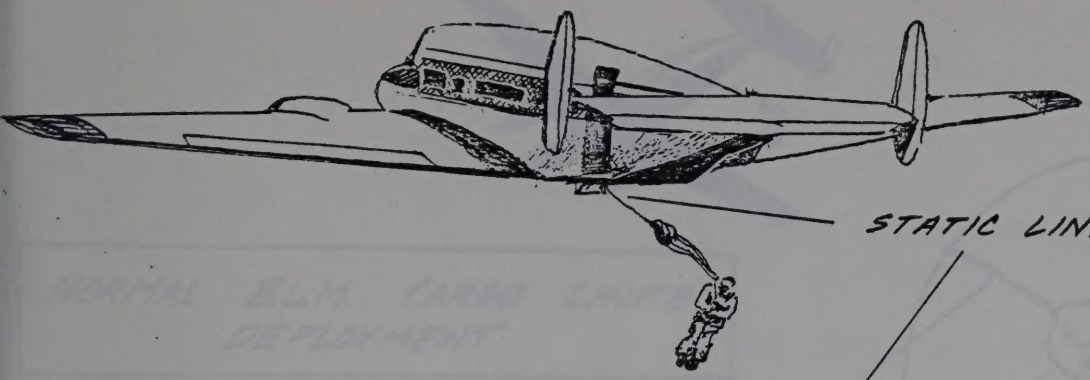
It is my theory that Bass assumed the cargo chute container was in fact a deployment bag, and therefore, the deployment sequence would be the same as his military experience. Once he made that basic wrong assumption, he mistook the cargo attachment strap for a static line. He then attached the cargo to the apex ring and the cargo attachment strap to the aircraft. See Illustration #4.

Once the cargo was ejected, it pulled the chute and lines out of the container and then broke free of the apex. The aircraft effectively then became the cargo. See Illustration #3.

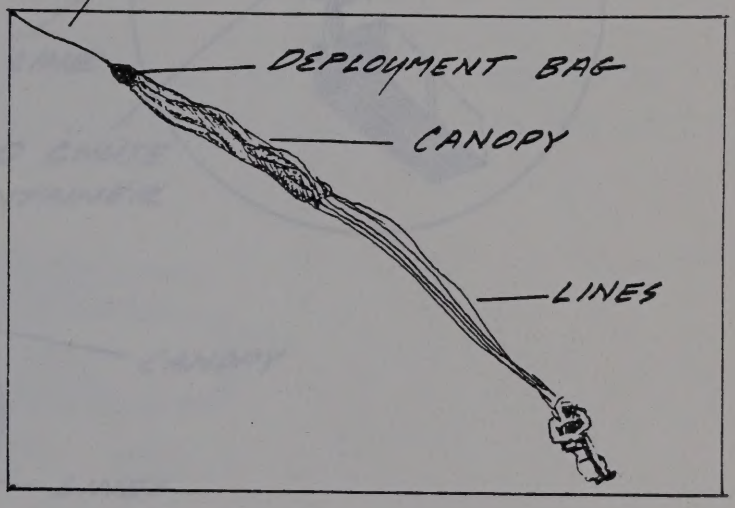
REVERSED CARGO CHUTE ATTACHMENT

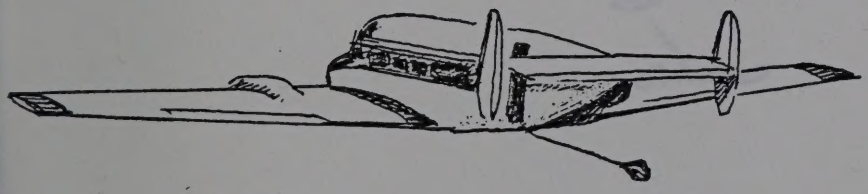
The NTSB interview with Lance Gayle confirms that the cargo chute cargo attachment strap was in fact attached to the aircraft instead of the cargo. The apex of the chute was then attached to the cargo via a five foot rope instead of to the aircraft via a static line. See Illustration #4.

ILLUSTRATION # 1



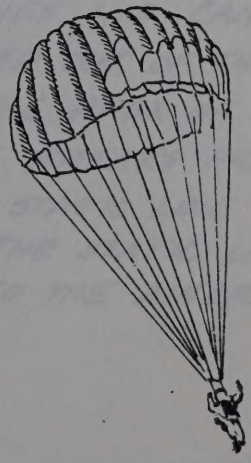
MILITARY T-10 PERSONNEL PARACHUTE DEPLOYMENT





IMPORTANT POINT:

ONCE LINES AND CANOPY ARE PULLED TO FULL STRETCH, THE PARACHUTE BREAKS FREE, LEAVING THE STATIC LINE AND DEPLOYMENT BAG ATTACHED TO THE AIRCRAFT



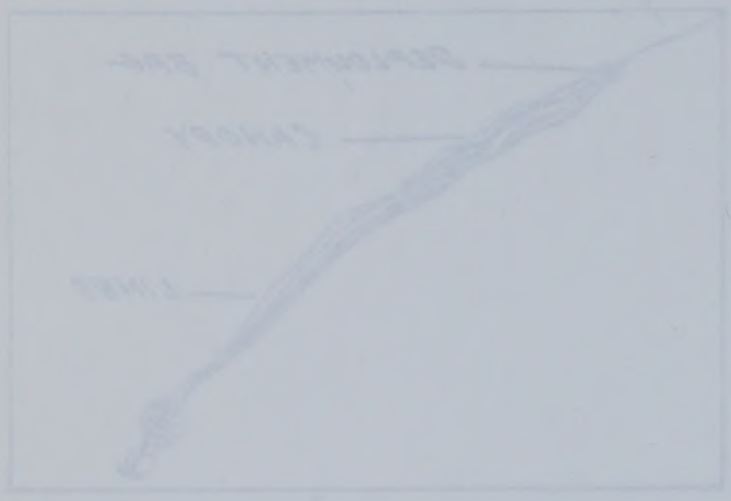
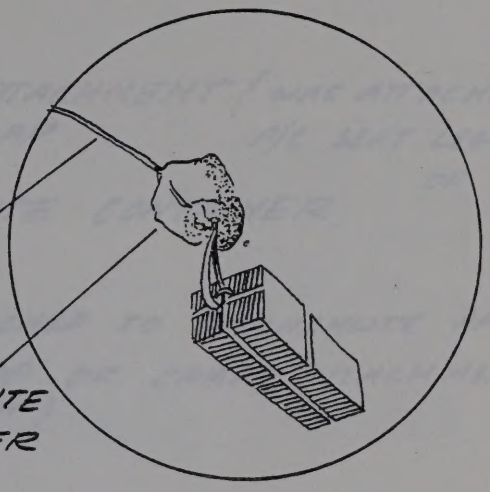
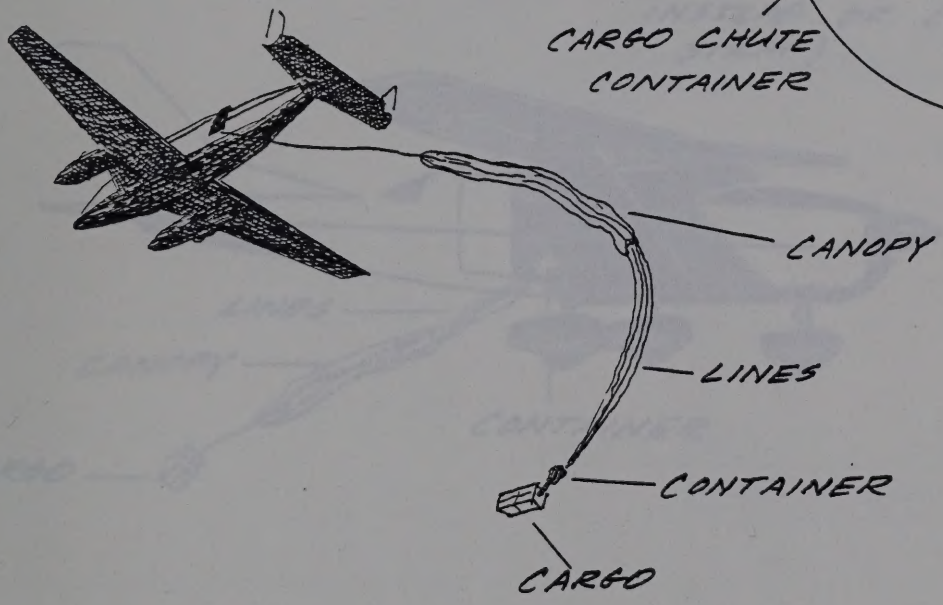
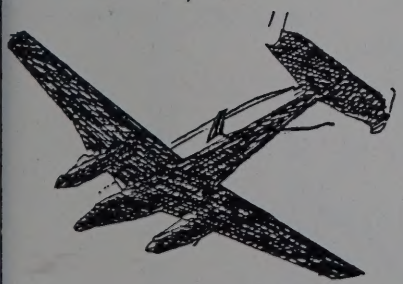


ILLUSTRATION # 2

NORMAL B.L.M. CARGO CHUTE DEPLOYMENT

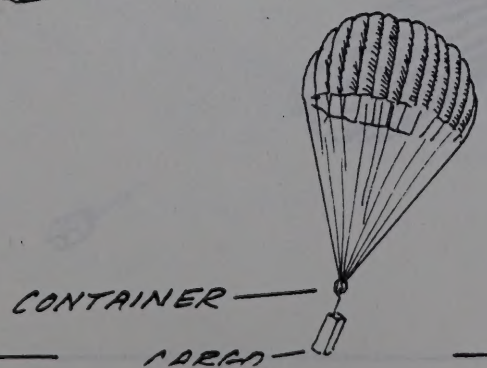






IMPORTANT POINT:

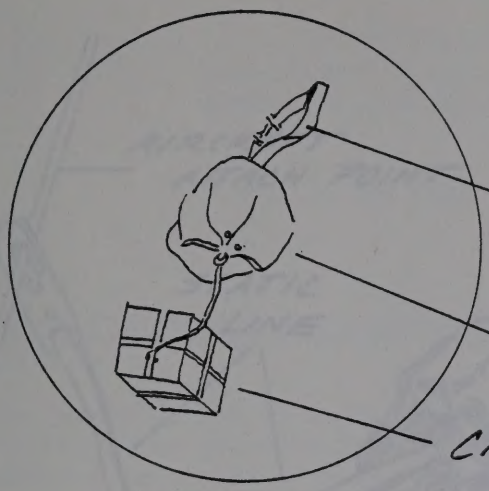
ONCE LINES AND CANOPY ARE PULLED OUT OF THE CON-TAINER, THE APEX OF THE PARACHUTE BREAKS FREE FROM THE STATIC LINE LEAV-ING ONLY THE STATIC LINE ATTACHED TO THE AIRCRAFT



D.P. '60

ILLUSTRATION #3

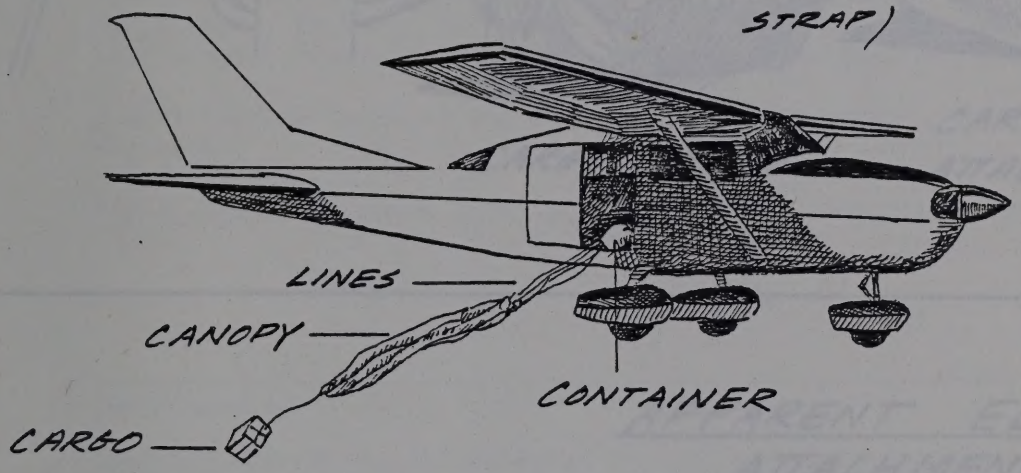
ELY ACCIDENT DEPLOYMENT SEQUENCE THEORY

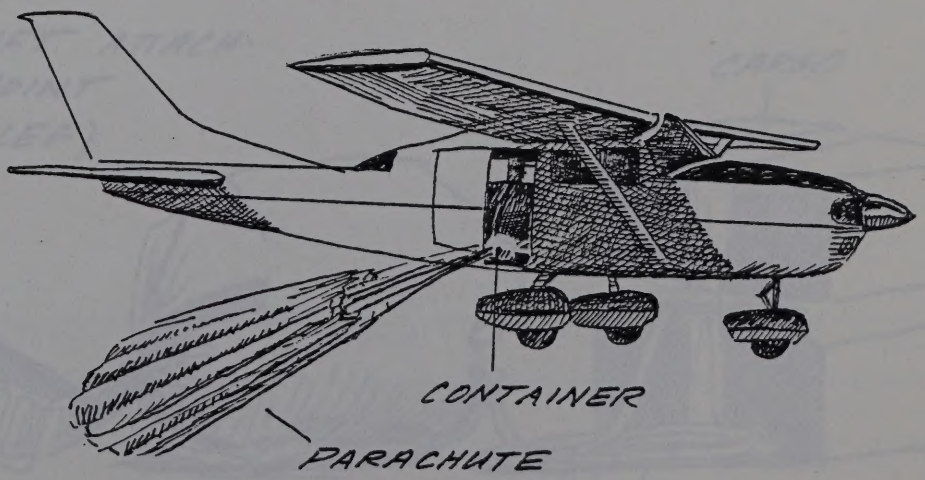


CARGO ATTACHMENT STRAP (WAS ATTACHED TO A/C SEAT LEG INSTEAD OF CARGO)

CARGO CHUTE CONTAINER

CARGO (ATTACHED TO PARACHUTE APEX INSTEAD OF CARGO ATTACHMENT STRAP)





D.P. '80

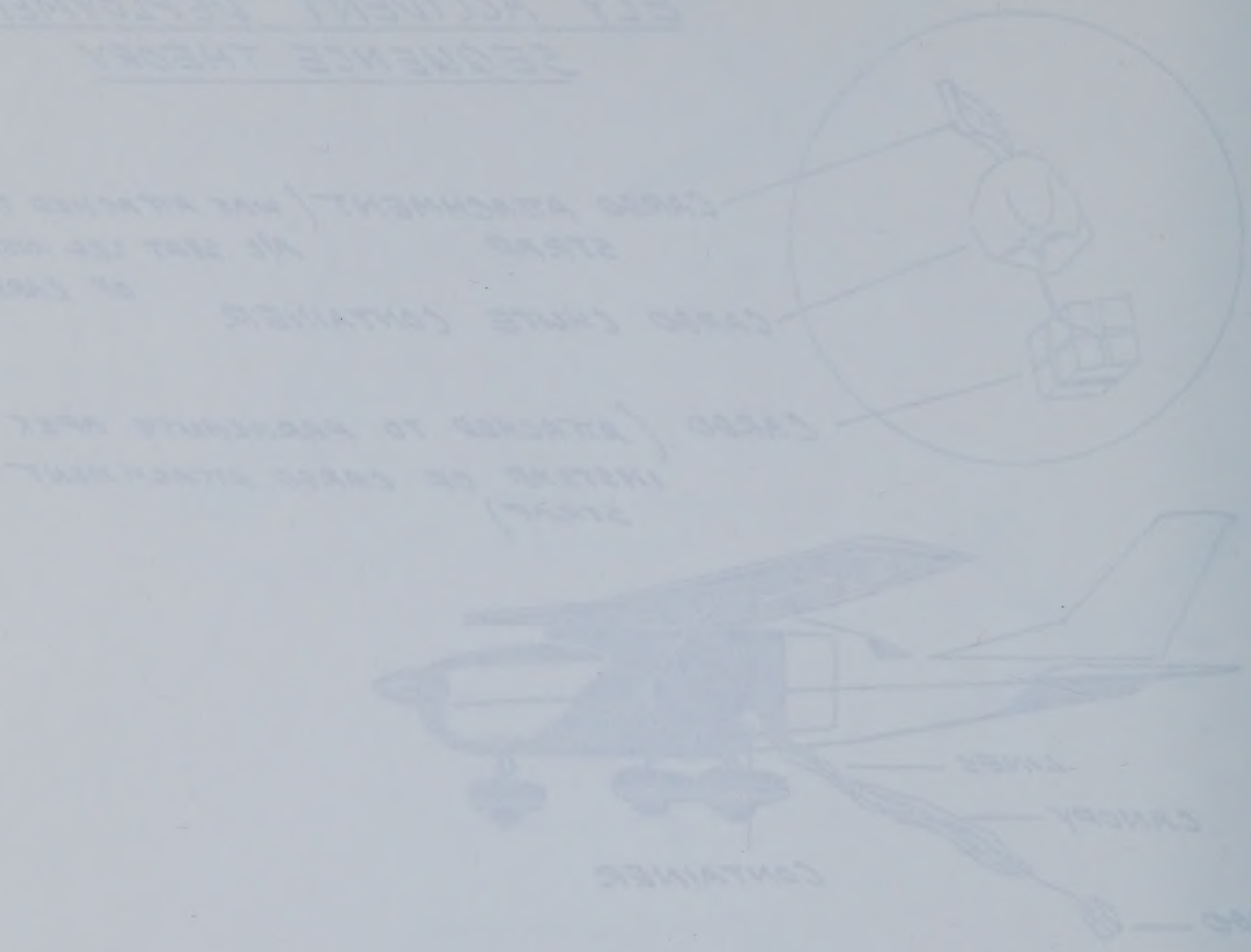
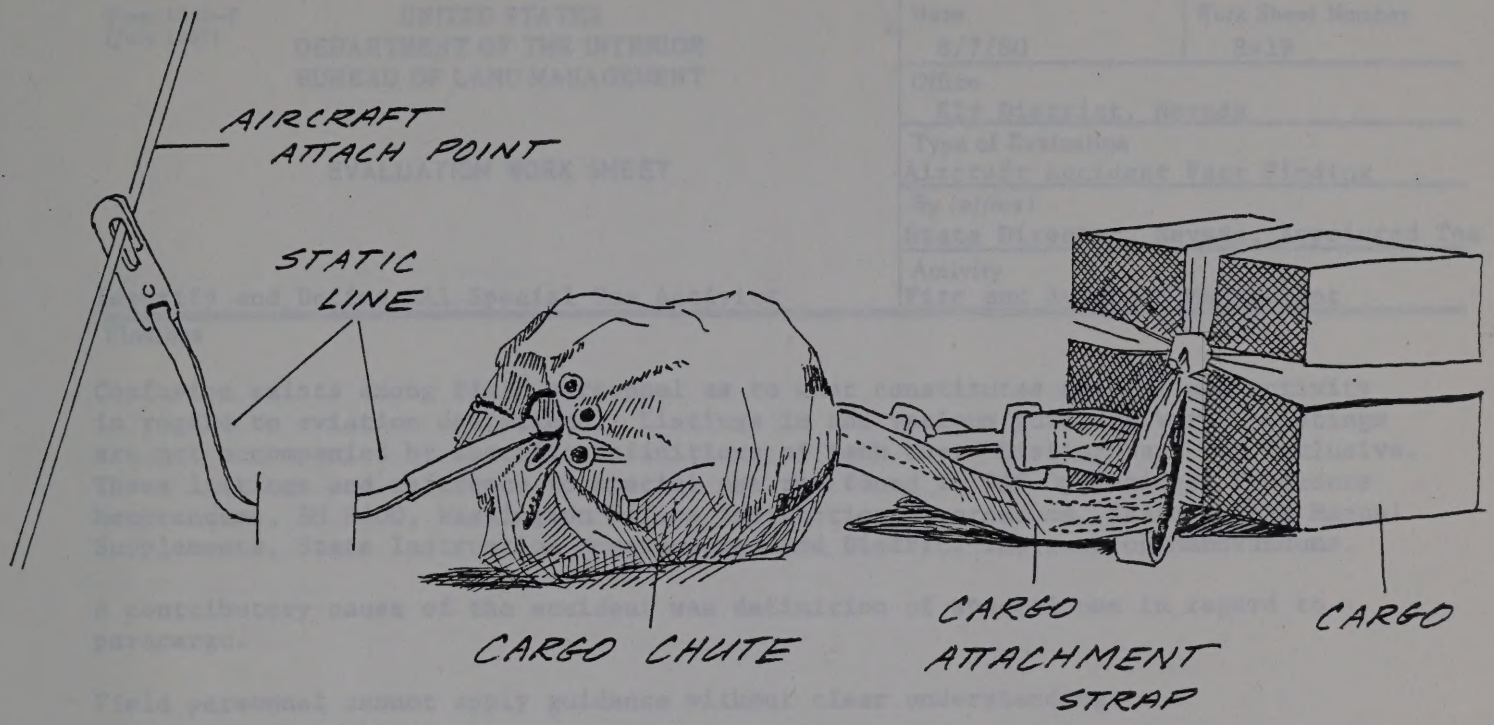
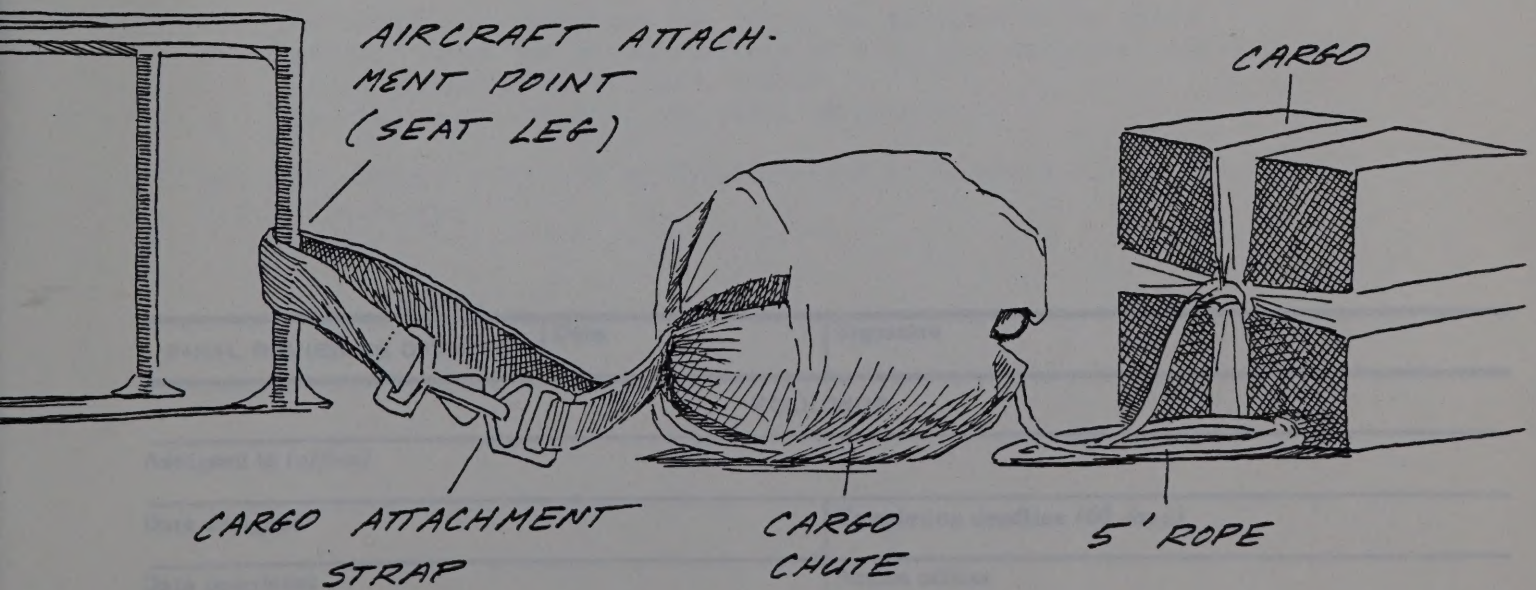


ILLUSTRATION # 4

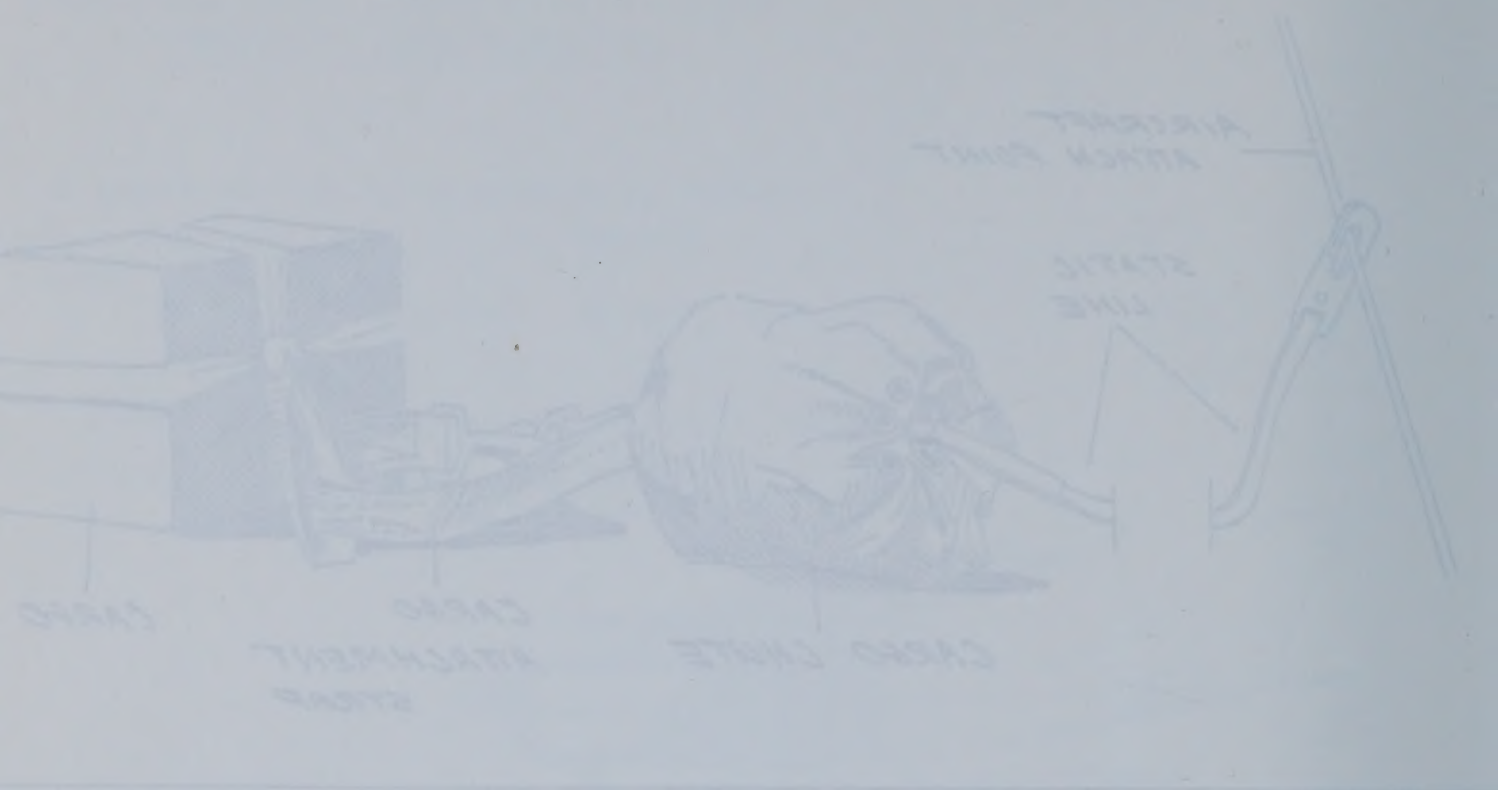
CORRECT PARACARGO ATTACHMENT SEQUENCE



APPARENT ELY ACCIDENT ATTACHMENT SEQUENCE



D.P. '80



Form 1240-7
(July 1967)

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

EVALUATION WORK SHEET

Date	Work Sheet Number
8/7/80	8-19

Office: Ely District, Nevada

Type of Evaluation: Aircraft Accident Fact Finding

By *(office)*: State Director, Nevada, Appointed Tea

Activity: Fire and Aviation Management

Identify and Define All Special Use Activity

Findings

Confusion exists among field personnel as to what constitutes special use activity in regard to aviation operations. Listings in the various guidance vary. Listings are not accompanied by specific definitions of each use. Listings are not inclusive. These listings and reference to special use are found in OAS-Operational Procedure Memorandums, BM 9400, Washington Office Instruction Memorandums, State Bureau Manual Supplements, State Instruction Memorandums, and District Instruction Memorandums.

A contributory cause of the accident was definition of special use in regard to paracargo.

Field personnel cannot apply guidance without clear understanding.

Recommendations

Identify and define all aviation special use operations, i.e., paracargo, free fall, direct fire suppression missions, smokejumping, sling loading, aerial firing, flying drip torch, game counting, water bucket operations, low-level recon, and others. Include this information in the Office of Aircraft Services OPM's and BM 9400.

FINAL REVIEWING OFFICER	Date	Signature

FOLLOWUP

Assigned to *(office)*

Date assigned	Completion deadline *(60 days)*
Date completed	Action officer

GPO 838-774

Form 1240–7
(July 1967)

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

EVALUATION WORK SHEET

Date	Work Sheet Number
8/7/80	9-19

Office: Ely District, Nevada

Type of Evaluation: Aircraft Accident Fact Finding

By *(office)*: State Director, Nevada, Appointed Tea

Authority to Conduct Aviation
Special Use Activity Operations

Activity: Fire and Aviation Management

Findings

Guidance could not be found at any level in respect to what authority, if any, is required to establish a special use activity operation. This problem is not unique to the Ely District, Nevada, or any other state conducting special use operations. The problem can be expanded to areas beyond the aviation field, including such functions as fireline explosive operations. Although guidance could not be found, correspondence suggests authorization by use of terms such as approved, certified, authorized, etc.

Recommendations

1. Determine the authorizing office and officer (recommend State Director, due to the variety of operations, response time, and grass roots control opportunity.)

2. Each special use activity would require an operating plan prior to approval which includes at minimum:

   a. Description of operation and technical guidance to be used.
   b. Identify tasks and responsibility by position, including job standards.
   c. Safety standards to mitigate hazard.
   d. Security plan regarding hazardous materials.

3. Annually, submit a list of approved operations to the W.O. for circulation within the Bureau.

FINAL REVIEWING OFFICER	Date	Signature

FOLLOWUP

Assigned to *(office)*

Date assigned	Completion deadline *(60 days)*
Date completed	Action officer

GPO 836-774

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UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

EVALUATION WORK SHEET

Date	Work Sheet Number
8/7/80	10-19

Office: Ely District, Nevada

Type of Evaluation: Aircraft Accident Fact Finding

By *(office)*: State Director, Nevada, Appointed Tea

Activity: Fire and Aviation Management

Technical Guidance

Findings

The team could not find formal technical guidance for special activity use operations. Further, the vehicle to develop, update, distribute, and control this type guidance could not be found. This is the case with paracargo operations. Some individual offices in the Bureau have developed technical guidance through their own initiative, due to heavy workload in a specialty function. This does not assist total Bureau operations, since knowledge of existence, distribution, and authorization systems are not established. Bureau Manual contains some technical guidance mixed with policy guidance. This vehicle is inappropriate since it is not time responsive to update and not subject to hands-on expertise. Lack of available technical guidance was a major contributing factor to the accident. This deficiency encourages individual offices to improvise with the associated hazards. Available technical guidance is as necessary as the hardware, aircraft, and manpower.

Recommendations

1. The Bureau designate its major single line office, based on volume of special activity use, responsibility for development, update, and maintenance of technical guidance for that special activity. As examples:

   Smokejumping and Paracargo - Alaska
   Aerial Seeding and Spraying - Idaho
   Game Counting - Nevada
   Flying Drip Torch - California

2. Formalize the system by reference in Bureau Manual.
3. Require update annually at minimum.
4. Make BIFC responsible for distribution. This also complements the BIFC training responsibility.
5. Use a Technical Guideline Handbook system.

FINAL REVIEWING OFFICER	Date	Signature

FOLLOWUP

Assigned to *(office)*

Date assigned	Completion deadline *(60 days)*
Date completed	Action officer

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DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

EVALUATION WORK SHEET

Date	Work Sheet Number
8/7/80	11-19

Office: Ely District, Nevada

Type of Evaluation: Aircraft Accident Fact Finding

By *(office)*: State Director, Nevada, Appointed Tea

Activity: Fire and Aviation Management

Pilot Training and Carding for Special Use

Findings

Current National pilot training standards for most special use activities are not available. Proficiency criteria are non-specific for most special use activity pilots. This directly impacts the quality of pilot obtained through the carding system.

Recommendations

1. Training standards need to be developed for pilots of special use missions, including government pilots. We recommend OAS for lead role and the major user line office (see Worksheet #10) as secondary role.

2. A proficiency mission should be flown, demonstrating specific abilities, procedures, and knowledge prior to carding.

3. The training and check flight for Paracargo, Smokejumper, and other selected special use pilots should be done jointly by an agency approved check pilot who himself is carded for that specific special mission and by an air crew member who is certified for that specific activity.

FINAL REVIEWING OFFICER	Date	Signature

FOLLOWUP

Assigned to *(office)*

Date assigned	Completion deadline *(60 days)*
Date completed	Action officer

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UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

EVALUATION WORK SHEET

Date	Work Sheet Number
8/7/80	12-19

Office
Ely District, Nevada

Type of Evaluation
Aircraft Accident Fact Finding

By *(office)*
State Director, Nevada, Appointed Tea

Activity
Fire and Aviation Management

National Standards for Air Crew Positions

Findings

There are no National Standards for paracargo droppers or other non-pilot air crew positions as illustrated by OPM-1-3C. Yet, National guidance requires use of "qualified" personnel. However, there is no definition of qualified. Qualification must include specialty training, hands-on training, actual performance monitored by a qualified specialist, and annual recurrency training.

Recommendations

1. Identify one organization as the National expertise focal point for each air crew specialty (see Worksheet #10).
2. Identify air crew positions.
3. Establish standards, training requirements and recurrency requirements for all air crew positions.
4. Identify other specific organizations which are authorized to certify qualifications.
5. In the case of paracargo droppers, certification should only be allowed by an established Federal Smokejumper Unit.

FINAL REVIEWING OFFICER	Date	Signature

FOLLOWUP

Assigned to *(office)*

Date assigned	Completion deadline *(60 days)*
Date completed	Action officer

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DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

EVALUATION WORK SHEET

Date	Work Sheet Number
8/7/80	13-19

Office: Ely District, Nevada

Type of Evaluation: Aircraft Accident Fact Finding

By *(office)*: State Director, Nevada, Appointed Tea

Activity: Fire and Aviation Management

Paracargo Aircraft Approval

Findings

The C-206 is not a formally approved paracargo aircraft as is the case with other aircraft currently being used for paracargo. There are no existing formal criteria for Paracargo "Only" Aircraft.

Recommendations

1. Have the Interagency Smokejumper Aircraft Screening and Evaluation Board discuss "Paracargo Only" Aircraft criteria at their winter meeting.
2. SASEB should then recommend a criteria and approval process.
3. Single agency approval should be an option if only one agency has a need for a specific aircraft.

FINAL REVIEWING OFFICER	Date	Signature

FOLLOWUP

Assigned to *(office)*

Date assigned	Completion deadline *(60 days)*
Date completed	Action officer

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DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

EVALUATION WORK SHEET

Date	Work Sheet Number
8/7/80	14-19

Office
Ely District, Nevada

Type of Evaluation
Aircraft Accident Fact Finding

By *(office)*
State Director, Nevada, Appointed Tea

Activity
Fire and Aviation Management

Special Use Activity Equipment Acquisition

Findings

The parachute used in the Ely District was obtained from the Missoula Smokejumper Base. Its possession provided use opportunity by non-qualified personnel.

Recommendations

1. Instructions need to be issued to all special use operations not to send special use equipment anywhere except to another office authorized to conduct specific special use activity.

2. A letter requesting the same should be sent to USFS and other agencies engaged in special use activities.

3. Recommend the Bureau's W.O. initiate the action.

FINAL REVIEWING OFFICER	Date	Signature

FOLLOWUP

Assigned to *(office)*

Date assigned	Completion deadline *(60 days)*
Date completed	Action officer

GPO 836-774

Personnel Awareness of Guidance

(Findings and Recommendations)

General Findings:

A. Aviation Program Statement

The Nevada State Office and the Ely District are among the leaders in the western states in developing and implementing aviation management programs. Their use of aircraft is similar to the use by the other states and districts. Their guidance and organization is in the forefront. Ironically, this tragic accident happened here--but it should not be allowed to mask the high degree of risk existing elsewhere in the Bureau. The organization and management of Bureau aviation services is an urgent matter; and full, immediate commitment and priority from the top is essential if occurrences similar to this one are to be avoided in the future.

B. Guidelines and Directives

Guidelines and directives for aviation safety management are well established in the Nevada State Office and District Offices. Guidelines or directives in the Ely District Office appear to be distributed through normal channels to those levels that most need to know. There is ample evidence that the District Manager, his principal staff, and fire management employees receive guideline and directives through normal distribution. Any immediate attention directives are given special distribution by the Fire Management Officer.

C. Management Involvement

Management including the District Manager and Division Chiefs appear to be well involved in and have an awareness for the guidance available in aviation safety matters. It is unclear how involved the Area Managers may be in safety matters. The District Manager has exercised strong leadership in providing guidance to the Ely District employees. He is a qualified pilot. He attended a week's training session entitled "Aviation and Fire Management for Fire Officers" at Marana, Arizona, in 1978. He was instrumental in obtaining helicopter safety training for District employees in 1979 and in 1980. The District Manager considers aviation safety a significant part of his District Safety Program, although the two may be considered separately. The District Manager has issued Employee Information and Instruction Memorandums giving guidelines for aviation safety.

D. Aviation Safety Program

The District safety organization emphasizes employee and supervisor responsibilities for effective aviation safety performance. The District Safety Officer (G. Duncan MacDonald, Chief, Division of Operations) provides safety program leadership. The District Air Officer (Dan King, Fire Management Officer) provides aviation program leadership.

The Nevada State Safety Plan (Instruction Memorandum 80-310, July 14, 1980) references BLM Manual Sections 9400 and 9430 specifically for aviation safety guidance; and OAS-OPM's, WO and NSO Instruction Memorandums generally for guidance.

The Ely District Safety Plan (Nov. 9, 1977) does not have a specific section on aviation safety. However, employee and supervisor responsibilities, use of protective equipment, and reporting procedures are covered and apply as well to aviation as to other functions.

The Ely District Safety Policy (Instruction Memorandum NV-040-79-4, January 26, 1979) states: "All personnel who are involved in aircraft operations will follow all procedures of the District's Air Safety directives, wear the protective clothing required as well as attend air safety training."

The Ely District Air Operation Plan (Instruction Memorandum NV-040-79-3) has safety integrated throughout.

The Team finds a good organization interrelationship between the general District safety program and aviation safety. Responsibilities are properly assigned. The concept of having a single individual (District Air Officer, Dan King) provide a final approval for all aircraft use is considered by the Team to be the appropriate way to assure safe and proper use of aircraft. The failure which led to the accident was related to the availability and use of guidance for that final approval--and not to the organizational set-up for the aviation services.

E. Attitudes Toward Guidance

The team encountered no negative attitude towards guidance given for aviation use and safety. Most persons were given guidance orally, and accepted it willingly.

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EVALUATION WORK SHEET

Date	Work Sheet Number
8/7/80	15-19

Office
Ely District, Nevada

Type of Evaluation
Aircraft Accident Fact Finding

By *(office)*
State Director, Nevada, Appointed Team

Aviation Management and Safety

Activity
Fire and Aviation Management

Findings

Safety management is assigned to the Chief, Division of Operations. Fire and Aviation safety is assigned to the Fire Management Officer. Both of these positions are heavily loaded with a multitude of other duties. It is questionable how much constructive time and effort can be devoted by these staff officers to a Safety Management Program for a District organization that varies from 66 to more than 100 employees during the year, with an ever-increasing aviation management workload.

Part B of the District Manager's Instruction Memorandum NV-040-79-3 establishes the Fire Management Officer as District Aircraft Management Officer, "through whom all aircraft operations shall be coordinated."

Recommendations

That a new, full-time District position be established for Aviation Management and Safety. The position will require job performance standards and will serve directly under the Fire Management Officer. The "Report of the Task Force on Fire Qualifications", dated April 1977, addresses model District Fire Management organizations. It prescribes the following:

Low Fire Occurrence District - Fire Management Officer has the aviation functions.

Medium Fire Occurrence District - A permanent Air Operations Officer working under the Fire Management Officer.

High Fire Occurrence District - A permanent Air Operations Officer working under the Chief, Division of Operations.

FINAL REVIEWING OFFICER	Date	Signature

FOLLOWUP

Assigned to *(office)*

Date assigned	Completion deadline *(60 days)*
Date completed	Action officer

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UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

EVALUATION WORK SHEET

Aviation Safety Responsibility and Knowledge Levels - Fire Management Personnel

Date	Work Sheet Number
8/7/80	16-19

Office
Ely District, Nevada

Type of Evaluation
Aircraft Accident Fact Finding

By *(office)*
State Director, Nevada, Appointed Team

Activity
Fire and Aviation Management

Findings

The District Manager, Chief Division of Operations and Fire Management Officer appear to be well versed in the aviation safety guides that are available and use them regularly, particularly the Fire Management Officer. The lower echelon of the organization - Fire Control Officer to Dispatchers are less well versed in the guides. They know that the guides exist and review those that are distributed largely by the Fire Management Officer. The lower echelon employees rely heavily on the Fire Management Officer for his understanding of these guides and interpretation of the guides as questions arise. The level of knowledge is probably commensurate with the temporary grade levels, Fire Control Officer, GS-6, to Dispatcher, GS-2; however, it appears that the level of responsibility assigned to these positions is far greater than the Bureau should require. As long as the Bureau expects low experience level employees to perform this high level work, we can expect no more in performance.

It appears that adequate job performance standards do not exist for the Dispatcher position.

Recommendations

That there be greater emphasis on more employees becoming knowledgeable in the guides and that each level of employee be held responsible for a working knowledge of the guides as relates to their performance. It is also recommended that the Fire Control Officer and Dispatcher positions be upgraded to attract more highly qualified personnel with longer tenure, and that these positions be described with accurate job performance standards.

FINAL REVIEWING OFFICER	Date	Signature

FOLLOWUP

Assigned to *(office)*

Date assigned	Completion deadline *(60 days)*
Date completed	Action officer

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EVALUATION WORK SHEET

Date	Work Sheet Number
8/7/80	17-19

Office
Ely District, Nevada

Type of Evaluation
Aircraft Accident Fact Finding

By *(office)*
State Director, Nevada, Appointed Team

Activity
Fire and Aviation Management

Knowledge Level of Guidance –
Other Than Fire Personnel

Findings

The knowledge level about guidance in aviation matters in terms of such things as the BLM Manuals, Office of Aircraft Services OPM's, State Office Directives, and District Aviation Plans, appeared to be quite low for those using aircraft for resource management purposes. With the single exception of one Area Manager who keeps his own file on aviation matters, the users stated that they would go to Danny King for aircraft use and safety guidance. There is a familiarity with the forms required for operational purposes. Personnel are aware of safety requirements as they relate to the performance of their duties in aircraft. Resource users of aircraft do not have any job performance standards relating to aircraft management and safety. Most of them must rely on others for evaluation of effectiveness of use, aircraft safety, and other aviation related matters.

There is little to no technical guidance in aviation matters. Department and Bureau policy are handled in the Manuals but nowhere is there a single source of practical guidance for users of aircraft. The subject material changes rapidly and requires some sort of flexible, understandable format for field users of aircraft.

Recommendations

Provide training that will insure that cost effective evaluations are made at the technical (resource) level.

Insure that aircraft safety evaluation and recommendations are made by a qualified person in aviation safety and use.

Provide for a mechanism whereby a field level unit with expertise can provide technical guidance in aviation management on a Bureau-wide basis. The providing unit need not necessarily be a BLM organization (see Worksheet #10).

FINAL REVIEWING OFFICER	Date	Signature

FOLLOWUP

Assigned to *(office)*

Date assigned	Completion deadline *(60 days)*
Date completed	Action officer

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EVALUATION WORK SHEET

Date	Work Sheet Number
8/7/80	18-19

Office
Ely District, Nevada

Type of Evaluation
Aircraft Accident Fact Finding

By *(office)*
State Director, Nevada, Appointed Team

Activity
Fire and Aviation Management

Accident Alert Network

Findings

It is likely that many of the factors contributing to this accident are present in other Bureau offices' field operations. If the other offices knew the circumstances involved, they might be able to avoid similar accidents.

Recommendations

For this accident, and for all future major accidents related to Bureau operations, immediately release a brief summary of the key causative factors. Give this information wide distribution. Utilize an existing information distribution capability to establish this accident alert network. Suggest BIFC coordinate this system.

FINAL REVIEWING OFFICER	Date	Signature

FOLLOWUP

Assigned to *(office)*

Date assigned	Completion deadline *(60 days)*
Date completed	Action officer

GPO 836-774

Form 1240-7
(July 1967)

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

EVALUATION WORK SHEET

Date	Work Sheet Number
8/7/80	19-19

Office
Ely District, Nevada

Type of Evaluation
Aircraft Accident Fact Finding

By *(office)*
State Director, Nevada, Appointed Team

Training

Activity
Fire and Aviation Management

Findings

Forty-three District personnel completed Helicopter Safety training in 1980. Major attendance included non-Fire personnel. Seven employees were scheduled for S-270 (Basic Air) in June 1980, and an employee was scheduled for S-451 (Air Service Officer). Mr. McCleery (District Manager), Mr. MacDonald (Chief Division of Operations) and Danny King (Fire and Aviation Management Officer) have completed Aviation and Management Safety training at the National Advanced Resource Technology Center, Marana, Arizona. This finding is presented to show the District's positive concern relative to aviation.

Attendees reported that these courses are of minimal practical value in respect to day-to-day operations on a District. Developed special use activity training is minimal. The National Aviation and Management Safety course did not mention the word paracargo, to attendees' knowledge.

The "S" courses do not handle special use activity guidance.

Recommendations

1. Develop technical guidance handbooks as reference for field supervisors and basis for development of training courses. Guidance development has been discussed. BIFC would take the second step of training course development.

2. In the interim, add units to existing aviation "S" courses which address special use activities. Redesign of training should use existing field expertise to identify field deficiency and develop credible training which meets the deficiency. BIFC would take the lead role.

(As an observation, the fire management program is the principal source of aviation management training available today, and the training reflects fire in large part. At an increasing rate, fire is not the major aviation user.)

FINAL REVIEWING OFFICER	Date	Signature

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